SECTOR 6

NORTH COAST OF FRANCE—DOVER STRAIT—CAP D'ANTIFER TO THE BELGIAN FRONTIER

Plan.—This sector describes Dover Strait (Pas de Calais) and the N coast of France.

The descriptive sequence is NE in the Strait. The coast is followed from Cap d'Antifer to Baie de la Somme, then N to Cap Gris-Nez, and E to the boundary between France and Belgium.

General Remarks

6.1 Navigation within Dover Strait is a complex affair, affected by adverse hydrographic and meteorological conditions. Traffic patterns within the strait are equally complex, with cross-channel, locally bound vessels, and fishing boats affecting the through passage. Due to the relatively shallow water, vessels constrained by their draft may also be encountered within the strait.

Vessels bound for ports in NW Europe, the British Isles, and the Baltic Sea may wish to employ a deep-sea pilot before approach-ing the strait. Such pilots may be ordered from and em-barked off Brixham (Torbay) or Cherbourg (Pilot Hauturier). Vessels requesting deep-sea pilots should give as much advance notice as possible.

Shipping lanes in the area covered by this volume are among the busiest in the world and pose serious problems for the safe navigation of vessels transiting through Dover Strait.

For additional information concerning navigation in the English Channel and Dover Strait, see General Remarks in paragraph 1.1.

Dover Strait (Pas de Calais)

6.2 **Dover Strait** (51˚00'N., 1˚20'E.), 18 miles wide at its narrowest part, separates the SE coast of England from the N coast of France. This stretch of water contains a number of dangerous banks, which are composed of coarse sand and broken shells. These shoal banks, which are comparatively narrow, extend NE to SW in mid-channel and hinder navigation.

Greenwich Lightvessel (50˚24.5'N., 0˚00.0'), equipped with a racon, marks the W extremity of Dover Strait and the entrance point of the Traffic Separation Scheme (TSS) for northeastbound vessels is centered about 7 miles S of it.

Depths gradually increase to the N in the S part of North Sea, but do not exceed 50m in the area covered by this section.

Winds—Weather

Persistent strong winds produce the wind driven currents which may approach or exceed the rate of tidal currents.

Persistent W or SW gales can produce an observed overall movement as much as 1.5 knots through Dover Strait.

The resultant flow is the vector, which is the sum of the wind driven current, tidal current, the deflective force of the Earth's rotation, and any other current which may be present.

Ice

Ice forms in shallow waters around the coastline in severe winters. Floes, 2m in diameter and 15cm thick, were reported many years ago over many parts of the area covered by this sector.

The coastal area NE of Calais is most likely to be affected. The ice risk is highest from mid January to early March. Details of ice reporting and icebreaker services in the waters of the Netherlands and Germany are given in Pub. 192, Sailing Directions (Enroute) North Sea.

Tides—Currents

In the area covered by Sector 6 and Sector 7, the greatest part of the water movement is tidal. The reports of observations taken from lightvessels in the area, reveals that the average speed of the residual currents does not exceed 6 miles a day.

Underlying the oscillatory and rotary tidal currents there is a weak and complex counterclockwise circulation within the North Sea. However, along the E coast of England the flow is to the S.

Strong currents occur during and after positive and negative surges that may greatly increase tidal currents or tend to cancel each other out. Accurate current observations are not possible during storm surges, but currents running at several knots may occur. Variations in tidal heights are mainly caused by strong or prolonged winds, and by unusually low or high barometric pressure, causing positive or negative surges, respectively, that raise or lower sea level.

Predictions of offshore tide heights are difficult to obtain, especially in the S part of the North Sea, because the range varies so much. The height at Dover is about 6m compared to almost zero at Brown Ridge (52˚35'N., 3˚20'E.), 115 miles NE.

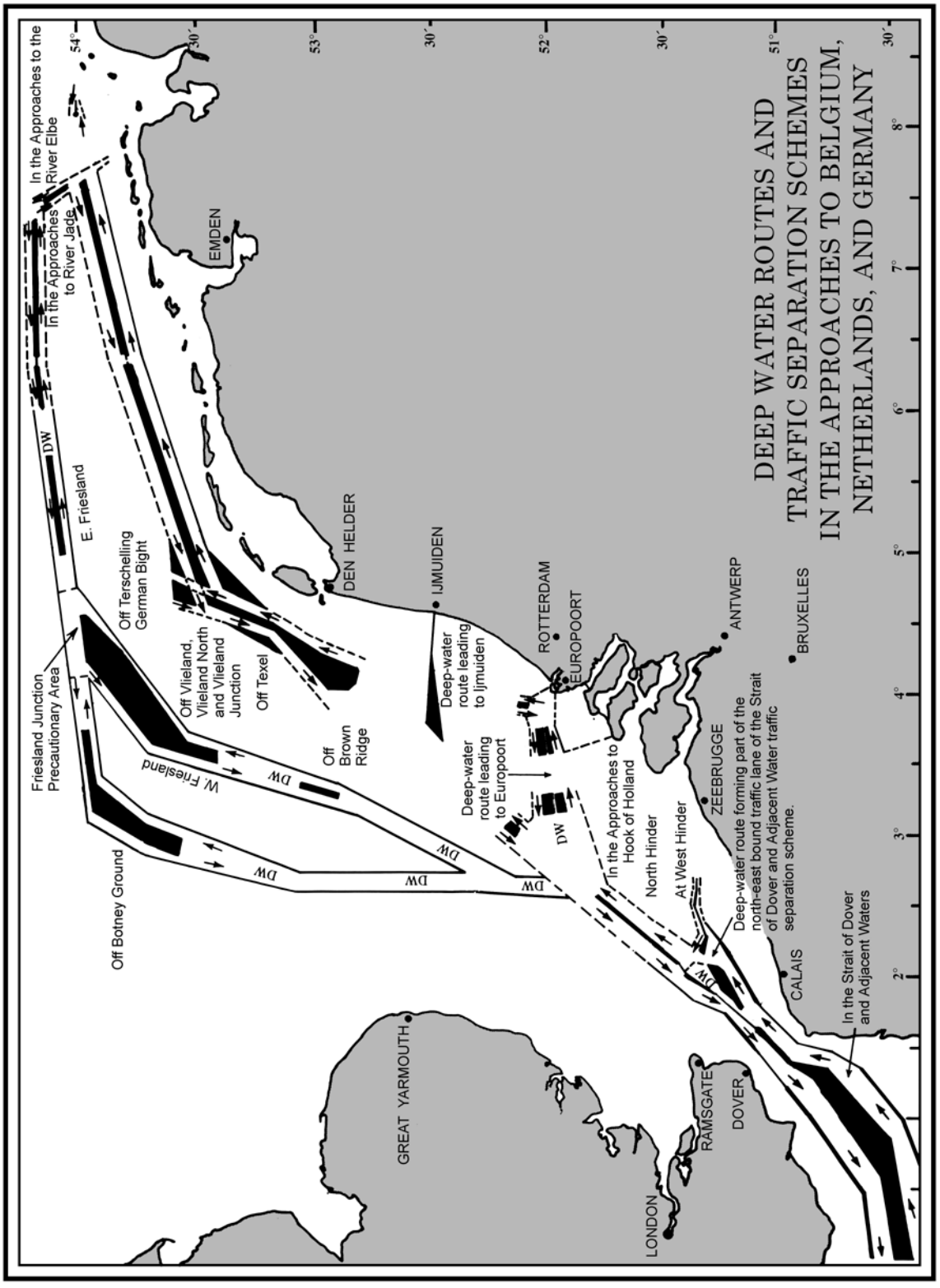
The rates of the tidal currents vary depending on the width of the English Channel. In Dover Strait, the narrowest part of the English Channel, currents may attain rates of 4 knots at springs. In the wider parts of the English Channel, a rate of 2.5 knots is rarely exceeded.

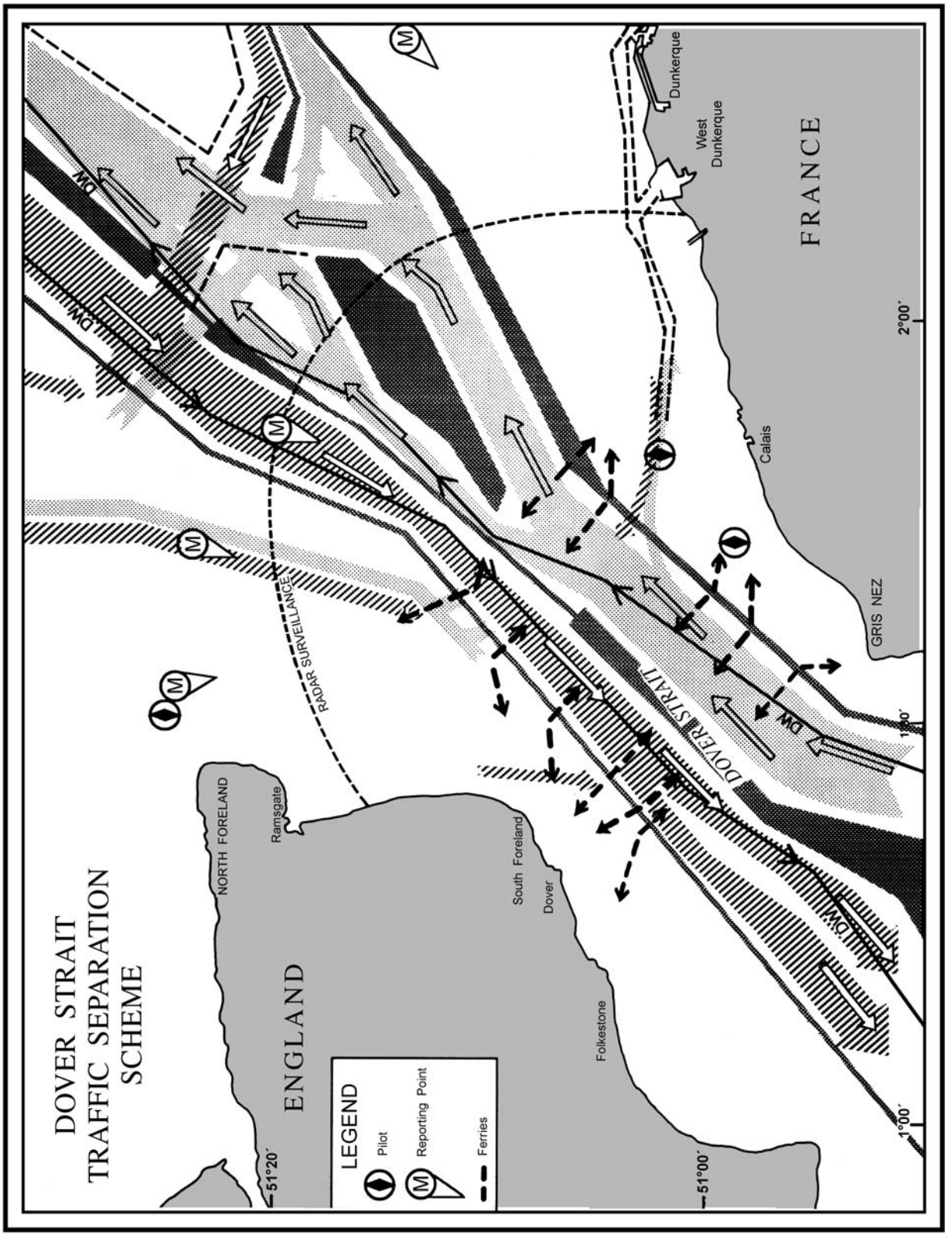
Data for predictions should be obtained from Tidal Current Tables produced by the National Ocean Service (NOS), tables on the charts, and other available references. The United Kingdom Hydrographic Office publishes a series of Tidal Current Atlases for the English Channel, Dover Strait, the Thames Estuary, and the North Sea.

A strong wind blowing with the main flood current will tend to increase the height of the tide and prolong the flood current.

Likewise a wind blowing with the ebb current may lower the height of the tide and prolong the ebb current. Winds blowing against the currents will have the opposite effect.

Seiches are short oscillations in sea level that may be caused by abrupt changes in meteorological conditions, such as the passage of an intense depression. Small seiches are not


DEEP WATER ROUTES AND TRAFFIC SEPARATION SCHEMES IN THE APPROACHES TO BELGIUM, NETHERLANDS, AND GERMANY
In the Approaches to the River Elbe
In the Approaches to River Jade
E. Friesland
Off Terschelling German Bight
Friesland Junction Precautionary Area
Off Vlieland, Vlieland North and Vlieland Junction
Off Texel
Off Brown Ridge
W. Friesland
Off Botney Ground
Deep-water route leading to Ijmuiden
Deep-water route leading to Europoort
In the Approaches to Hook of Holland
North Hinder
At West Hinder
Deep-water route forming part of the north-east bound traffic lane of the Strait of Dover and Adjacent Water traffic separation scheme.
In the Strait of Dover and Adjacent Waters
DW
EMDEN
DEN HELDER
IJMUIDEN
ROTTERDAM
EUROPOORT
ANTWERP
BRUXELLES
ZEEBRUGGE
CALAIS
DOVER
RAMSGATE
LONDON
GREAT YARMOUTH
54°
53°
52°
51°
30′
2°
3°
4°
5°
6°
7°
8°


DOVER STRAIT
TRAFFIC SEPARATION
SCHEME
ENGLAND
FRANCE
NORTH FORELAND
Ramsgate
South Foreland
Dover
Folkestone
Dunkerque
West
Dunkerque
Calais
GRIS NEZ
RADAR SURVEILLANCE
DOVER STRAIT
DW
M
LEGEND
Pilot
Reporting Point
Ferries
51°20´
51°00´
1°00´
2°00´

uncommon around the coasts of the British Isles, especially in winter months.

Winds from the NW and N drive water into the North Sea and raise sea level in its S part.

If these winds are of storm force and are accompanied by an intense depression moving slowly across the N part of the North Sea, a wave known as a storm surge travels down the North Sea raising tidal heights in extreme cases as much as 3m.

If the peak of the surge coincides with HW, a severe flooding can result, as has happened in the Thames Estuary and along the Netherlands coast.

A system exists for giving advance warnings of storm surges to civil emergency services in low-lying areas along the E coast of England.

Negative tidal surges, a result of abnormal decrease in tidal heights, are less predictable than storm surges since they occur in this area as a result of storms, but also affected by abnormally high barometric pressure.

Negative tidal surges are more of a threat to deep-draft vessels than storm surges, since they may lower predicted tidal heights as much as 2m, and they are more frequented in tidal estuaries and shallow water.

Years ago, at Southend-on-Sea (51˚31'N., 0˚47'E.), the sea level was 2m below the predicted level. A deep and complex depression formed over Iceland that moved swiftly S until W of Ireland. This gave rise to persistent S winds over the entire North Sea, blowing to gale force in places.

As a result, sea level in the S part of North Sea dropped by 0.5m below normal in some areas, and in other parts the drop was 1.8m below prediction levels during a period of 24 hours.

Years ago, an experimental warning service was instituted from September through April, inclusive, annually, to give advance warnings of negative surges. Negative tidal surge warnings to shipping are broadcast by Niton Radio, Hastings Radio, North Foreland, and Thames Radio.

The mean sea density in the offshore area covered by this volume is slightly greater in the winter than in the summer.

Slightly lower densities than these figures occur off the coasts of France, Belgium, and the Netherlands.

The coldest period occurs at the end of February and the hottest period in August. Day to day variations are negligible, but a gradual rise of a few degrees occurs during a spell of warm weather and a similar drop of several degrees happens during a period of E winds in mid-winter. Coastal waters are warmer than the open sea in summer and usually a little colder in winter.

Aspect

6.3 **The Varne** (50˚58'N., 1˚20'E.), a dangerous steep-to and narrow shoal, lies 11 miles NW of Cap Griz-Nez and extends for about 8 miles. Strong tide rips occur in the vicinity of this shoal and a heavy sea breaks over it during bad weather. This shoal has a least depth of about 3m and is marked by lighted buoys.

Varne Lightvessel (51˚01'N., 1˚24'E.), with a red hull, is moored at the NE end of The Varne and equipped with a racon.

The Ridge (Le Colbart) (50˚53'N., 1˚20'E.), a dangerous steep-to and narrow shoal, lies about 10 miles W of Cap Gris-Nez. It extends for about 10 miles and forms a natural separation between the traffic lanes of the TSS. This shoal, which is composed mostly of sand with mud and shells in places, has a least depth of 1.5m and is marked by lighted buoys. The sea breaks heavily on this shoal, especially with the wind against the tidal current.

Bullock Bank (50˚45'N., 1˚05'E.), a steep-to and narrow shoal, lies about 20 miles WSW of Cap Gris-Nez. It extends for about 7 miles and is marked by a lighted buoy. This bank has a least depth of 14m and is usually marked by strong tidal rips.

Les Ridens (50˚45'N., 1˚18'E.), lying about 13 miles SW of Cap Gris-Nez, is an area consisting of several shoals. These shoals are formed of sand, gravel, and shells disposed irregularly on a rocky bottom. The area has a least depth of 13m and is marked by a lighted buoy. The sea breaks heavily on this area and strong eddies occur in bad weather.

Bassurelle (50˚38'N., 1˚05'E.), a sandy shoal with a least depth of about 7m, lies 24 miles SW of Cap Gris-Nez. Strong eddies and a dangerous sea occur during bad weather, especially with the wind against the tidal current, in the vicinity of this shoal. The shoal extends for about 9 miles and the depths over it frequently change.

Bassurelle Lighted Buoy (50˚33'N., 0˚58'E.), equipped with a racon, is moored about 1.5 miles off the SW side of this shoal.

Vergoyer (50˚33'N., 1˚15'E.), a narrow sand bank, lies 23 miles SSW of Cap Griz-Nez. It extends for about 15 miles and is marked by lighted buoys. A shoal patch, with a least depth of 4.2m, lies near the NE extremity. The E side of this sand bank is steep-to, while the W side slopes gradually. In bad weather the sea breaks over this bank.

Vergoyer N Lighted Buoy (50˚40'N., 1˚22'E.), equipped with a racon, is moored about 2 miles N of the N end of this bank.

Bassure de Baas (50˚27'N., 1˚20'E.), a narrow bank of sand and shells, lies with its N end located about 4.5 miles SSW of Cap Griz-Nez. This bank has mostly depths of less than 7m and extends for about 35 miles. During bad weather the sea breaks heavily over the entire bank.

Numerous unmarked wrecks lie in the channel leading between the mainland coast and the N part of Bassure de Baas.

Battur, a shoal extending for about 9 miles, lies parallel with and SE of the SW extremity of Bassure de Baas. It has a least depth of 8.9m and is formed of sand, gravel, and shells. During strong W winds the sea breaks heavily on this shoal.

Sandettie (51˚15'N., 2˚00'E.), a shoal bank extending for about 15 miles, lies with its SW end located 11 miles NNW of Calais. It has a least depth of 5m and is marked by lighted buoys.

Sandettie Lightvessel (51˚09'N., 1˚47'E.), with a red hull, is moored off the SW end of the bank and equipped with a racon. This lightvessel may be replaced by a Lanby during the summer months.

Foxtrot 3 Lightvessel (51˚24'N., 2˚01'E.), with a red hull, is equipped with a racon. It is moored 6 miles NNW of the N end of Sandettie and marks the center separation zone of the TSS. This lightvessel is situated in an area of extensive crossing traffic; vessels should avoid approaching within 500m of it.

Inter Bank Lighted Buoy (51˚17'N., 1˚52'E.) (special) is moored 9 miles SW of Foxtrot3 Lightvessel and is equipped

with a racon. It is located 2 miles NW of the NW side of Sandettie and marks the center separation zone of the TSS.

MPC Lighted Buoy (51˚06'N., 1˚38'E.) is moored 13.5 miles SW of Inter Bank Lighted Buoy and marks the center separation zone of the TSS.

F2 Lighted Buoy (51˚21'N., 1˚56'E.) is moored 4.5 miles NE of Inter Bank Lighted Buoy and marks the center separation zone of the TSS.

F1 Lighted Buoy (50˚11'N., 1˚45'E.) is moored 7 miles SW of Inter Bank Lighted Buoy and marks the center separation zone of the TSS.

Dyck Lighted Buoy (51˚03'N., 1˚52'E.), equipped with a racon, is moored about 5 miles N of Calais.

Ruytingen SW Lighted Buoy (51˚05'N., 1˚47'E.) is moored about 3.7 miles WNW of Dyck Lighted Buoy, at the SE limit of the northeastbound traffic lane.

Out Ruytingen (51˚08'N., 2˚04'E.) extends ENE for about 16 miles from the vicinity of Ruytingen SW Lighted Buoy. It has depths of less than 5m in parts and is the outermost shoal fronting the coast in this area.

South Falls (51˚23'N., 1˚47'E.), a narrow shoal, lies with its S extremity located about 5 miles N of the SW end of Sandettie. It has a least depth of about 6m and is marked by lighted buoys. This shoal extends ENE for about 15 miles and forms the southeasternmost part of the Outer Banks fronting the Thames Estuary.

South Falls Lighted Buoy (51˚14'N., 1˚44'E.) is moored close S of the S end of South Falls at the NW limit of the southwestbound traffic lane.

East Goodwin Lightvessel (51˚13'N., 1˚36'E.), with a red hull, is moored 8 miles WNW of Sandettie Lightvessel and equipped with a racon.

CS4 Lighted Buoy (51˚09'N., 1˚34'E.) is moored about 4.8 miles SSW of the East Goodwin Lightvessel at the NW limit of the southwestbound traffic lane.

Colbert N Lighted Buoy (50˚07'N., 1˚24'E.) is moored about 4 miles S of the Varne Lightvessel at the center separation zone of the TSS.

Regulations

6.4 Special regulations and reporting procedures apply to tankers transporting hydrocarbons and to vessels transporting dangerous substances navigating in the approaches to the French coasts of the North Sea, the English Channel, and the Atlantic Ocean between the Belgian border and Spanish border. Such vessels preparing to pass through or stop within French Territorial Waters are required to send a message to the appropriate CROSS station giving their intended movements. In addition, such vessels must use the designated Mandatory Access Routes and Channels when approaching a port or roadstead.

Generally, tankers and vessels carrying dangerous cargo over 1,600 grt must stay at least 7 miles from the French coast unless in the northeastbound lane of the Dover Strait TSS or using the Mandatory Access Routes leading to Fecamp, Dieppe, Boulogne, Calais, or Dunkerque.

For further details of these special procedures, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

Traffic Separation Schemes.—An IMO-adopted Traffic Separation Scheme (TSS), which may best be seen on the chart, is situated in Dover Strait and Rule 10 of The International Regulations for Preventing Collisions at Sea (72 COLREGS) applies.

Inshore Traffic Zones lie on both sides of the Dover Strait TSS and regulations concerning their use are stated in The International Regulations for Preventing Collisions at Sea (72 COLREGS).

Routes.—The Mariners' Routeing Guide (Chart 5500) is published by the United Kingdom Hydrographic Office and depicts routes through the English Channel, Dover Strait, and the S part of the North Sea as far as the entrance to Europoort. The guide also provides details concerning regulations, pilotage, and radio services.

The IMO has adopted a recommendation that all vessels navgating in the English Channel and Dover Strait should carry the latest edition of this guide or other equivalent publications.

The Netherlands Hydrographic Service publishes, in English, a Deep Draft Planning Guide covering the Deep Draft Routes from the Greenwich Lightvessel to Europoort for vessels with drafts over 20.7m. However, the contents of the guide are not necessarily endorsed in every detail by the United Kingdom authorities.

Information Service.—Vessels in the vicinity of the Dover Strait TSS are advised to listen to the appropriate VHF broadcasts given by the Channel Navigation and Information Service (CNIS). This service, which is operated from Dover Strait Coast Guard and CROSSMA Griz-Nez, provides information concerning traffic, navigation, and visibility.

CNIS broadcasts are given on VHF channel 11 by Dover Coast Guard at 40 minutes past the hour (additional broadcasts at 55 minutes past the hour when visibility is less than 2 miles) and by Griz-Nez Traffic on VHF channel 79 at 10 minutes past the hour (additional broadcasts at 25 minutes past the hour when visibility is less than 2 miles).

The information broadcasts are preceded by an announcement on VHF channel 16 and followed by a reminder concerning the time and VHF frequency of the next broadcast.

Reporting Systems.—CALDOVREP, a mandatory reporting system under SOLAS regulations, has been established (1999) in a 65-mile stretch of the Dover TSS.

In order to enhance safe navigation, shore based facilities at Gris-Nez Traffic and Dover Coastguard will monitor shipping movements and provide advise and information pertaining to navigational hazards and weather conditions.

The following vessels are required to participate in the system:

1. All vessels over 300 grt.
2. All vessels 300 grt and under when either:
   a. not under command or at anchor in the TSS or its Inshore Traffic Zone.
   b. restricted in ability to maneuver.
   c. having defective navigational aids.

The reporting system area is bound to the E by a line extending between North Foreland Light (51˚23'N., 1˚27'E.) and the France/Belgium border (51˚05'N., 2˚33'E.); and to the W by a line extending from the Royal Sovereign Tower through Bassurelle Lighted Buoy (50˚33'N., 0˚58'E.) to the coast of France.

Vessels should report, as follows:

1. Northeastbound traffic—to Gris-Nez Traffic on VHF channel 13 when 2 miles prior to crossing the SW system limit line.
2. Southwestbound traffic—to Dover Coastguard on VHF channel 11 when within VHF range of North Foreland and not later than when crossing the NE system limit line.
3. When departing from a port within the ITZ.

Special reporting arrangements can be made on a ship-by-ship basis, subject to approval by both system traffic stations.

Reports should be made by VHF. However, when reporting to Dover Coastguard, vessels may fulfill the reporting requirement of CALDOVREP through the use of automatic ship identification (AIRS) transponders (see paragraph 1.1).

Reports to the traffic stations must include the following:

Designator	Information Required
A	Name, call sign, IMO identification or MMSI number for transponder reports.
C or D	Position.
E or F	Course and speed.
O	Draft.
L	Route information.
P	Hazardous cargo, class and quantity.
Q or R	Breakdown, damage and/or deficiencies affecting the structure, cargo, or equipment of the vessel or any cirumstances affecting normal navigation in accordance with SOLAS and/or MARPOL conventions.

The Ship Movement Reporting System (MAREP) is a voluntary reporting system operating in the English Channel and Dover Strait.

All merchant vessels over 300 grt are requested to report to the appropriate shore station when approaching the following:

1. The TSS off Ile d'Ouessant.
2. The TSS off Casquets.
3. The TSS within Dover Strait.

For further details of MAREP, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

Note.—Due to the CALDOVREP reporting system being mandatory in the area of the Dover Strait TSS, vessels are advised that this system takes preference over the Ship Movement Report System (MAREP), which is voluntary.

Directions

6.5 The northeastbound traffic lane of the TSS runs along the SE side of Dover Strait to the Noord Hinder Junction Precautionary Area, a total distance of 145 miles. The West Hinder TSS branches off the Dover Strait TSS, about 4 miles NE of the N end of Sandettie, and leads E for 20 miles to the pilot station.

The southwestbound traffic lane of the TSS runs along the NW side of Dover Strait and lies more or less parallel to the northeastbound lane.

Deep Draft Routes for deep-draft vessels follow the northeastbound and southwestbound traffic lanes but pass through specific positions known as waypoints.

The northeastbound Deep Draft Route passes to the NW of Sandettie and is recommended by the Netherlands authorities. It leads through that part of the TSS which has been designated a Deep Water Route by the IMO.

The southwestbound Deep Draft Route passes SE of the The Varne and has no official standing.

Inshore Traffic Zones are situated between the coasts and the traffic lanes on both sides of the TSS.

The routes, described below, are divided, as follows:

1. Northeastbound lane—Greenwich Lightvessel to Les Ridens.
2. Northeastbound lane—Les Ridens to Sandettie.
3. Northeastbound lane—Sandettie to Noord Hinder Junction.
4. Southwestbound lane—Noord Hinder Junction to the Greenwich Lightvessel.
5. Southwestbound Deep Draft Route.
6. Northeastbound Deep Draft Route.

Depths in the routes are critical for deep-draft vessels. A number of shoals and wrecks, with depths of less than 20m, lie within the lanes of the TSS. However, these can be avoided by using the Deep Draft Routes.

Greenwich Lightvessel to Les Ridens.—From a position about 6 miles S of Greenwich Lightvessel, the NE route follows the northeastbound traffic lane, which is 4 miles wide, for 60 miles in a general ENE direction passing:

1. Southeast of Bassurelle.
2. Northwest of Vergoyer.
3. Southeast of Les Ridens.

Les Ridens to Sandettie.—From a position SE of Les Ridens, the NE route follows the northeastbound traffic lane for 27 miles in a general NNE direction passing:

1. Westnorthwest of ZC1 Lighted Buoy (50˚45'N., 1˚27'E.) marking the Boulogne Approach Channel.
2. Eastsoutheast of The Ridge (Le Colbart).
3. Westnorthwest and NW of ZC2 Lighted Buoy (50˚54'N., 1˚31'E.).
4. Southeast of MPC Lighted Buoy (51˚06'N., 1˚38'E.).
5. Westnorthwest of Ruytingen SW Lighted Buoy (51˚05'N., 1˚47'E.) moored 4.5 miles S of the Sandettie Lightvessel.

Sandettie to Noord Hinder Junction.—The main northeastbound route leads SE of Sandettie and should be used by all vessels that can safely navigate in the channel with respect to their draft. The Deep Draft Route leads NE of Sandettie. These two routes merge again NE of Sandettie. From a position WNW of the Ruytingen SW Lighted Buoy (51˚05'N., 1˚47'E.), the route leads 58 miles passing:

1. Southeast of Sandettie.
2. Northwest of Out Ruytingen.
3. West of the entrance to the astbound lane of the West Hinder TSS.
4. East of Sandettie N Lighted Buoy (51˚18'N., 2˚05'E.).

5. Eastsoutheast of Foxtrot3 Lightvessel (51˚24'N., 2˚01'E.).
6. West of Hinder 1 Lighted Buoy (51˚21'N., 2˚11'E.).
7. Either side of Fairy W Lighted Buoy (51˚24'N., 2˚09'E.), then 30 miles NE through the North Hinder South TSS to the Noord Hinder Junction (51˚55'N., 2˚50'E.).

For additional information, including graphics, concerning the above routes and their continuation into the S part of the North Sea, see Pub. 192, Sailing Directions (Enroute) North Sea (Sector 6 and Sector 7).

Noord Hinder Junction to Greenwich Lightvessel.—From the Noord Hinder Junction the SW route follows the southwestbound lane of the Noord Hinder South TSS to Sandettie. It then follows the southwestbound lane of the Dover Strait TSS to a position about 6 miles NNW of Greenwich Lightvessel. The route is about 140 miles long and passes:

1. Northwest of Foxtrot3 Lightvessel (51˚24'N., 2˚01'E.).
2. Westnorthwest of Inter Bank Lighted Buoy (51˚17'N., 1˚52'E.).
3. Eastsoutheast of South Falls Lighted Buoy (51˚14'N., 1˚44'E.).
4. Northwest of F1 Lighted Buoy (51˚11'N., 1˚45'E.).
5. Northwest of MPC Lighted Buoy (51˚06'N., 1˚38'E.).
6. Either side of Varne Lightvessel (51˚01'N., 1˚24'E.).
7. Either SE or NW of S Varne Lighted Buoy (50˚55'N., 1˚17'E.).
8. Southeast of CS3 Lighted Buoy (50˚52'N., 1˚02'E.).
9. Southeast of CS2 Lighted Buoy (50˚39'N., 0˚33'E.).
10. Northnorthwest of Greenwich Lightvessel.

Southwestbound Deep Draft Route.—The controlling depth in this route is considered to be 23m lying over a swept wreck close SE of The Varne. A maximum draft is not stipulated for this route but recommended under-keel clearances are stated below. The Deep Draft Route consists of a track joining a series of waypoints. Waypoints designated 19 to 27 follow the SW traffic lane of the Noord Hinder South TSS and the Dover Strait TSS. A section of this track, indicated by Waypoint No. 23 through Waypoint No. 26, leads SE of The Varne.

The waypoints of the route are designated, as follows:

1. Waypoint No. 19 51˚57.7'N, 2˚37.8'E.
2. Waypoint No. 20 51˚50.6'N, 2˚30.3'E.
3. Waypoint No. 21 51˚34.5'N, 2˚08.2'E.
4. Waypoint No. 21A 51˚22.8'N, 1˚52.5'E.
5. Waypoint No. 22 51˚11.4'N, 1˚44.3'E.
6. Waypoint No. 23 51˚00.9'N, 1˚25.0'E.
7. Waypoint No. 24 50˚57.5'N, 1˚22.4'E.
8. Waypoint No. 25 50˚54.7'N, 1˚18.7'E.
9. Waypoint No. 26 50˚45.1'N, 0˚57.0'E.
10. Waypoint No. 27 50˚36.5'N, 0˚33.9'E.
11. Waypoint No. 28 50˚20.2'N, 0˚49.7'W.

Northeastbound Deep Draft Route.—The Netherlands authorities have selected a route within the northeastbound traffic lanes of the Dover Strait TSS and Noord Hinder South TSS as being the most favorable for vessels, with drafts over 20.7m, navigating from Greenwich Lightvessel to Europort. This route consists of a track joining a series of waypoints. The controlling depth in this route is considered to be 27.3m lying between Waypoint J and WaypointL. A section of this track, indicated by Waypoint F through Waypoint I, leads NW of Sandettie.

Vessels with drafts up to 22m, up to 22.6m in favorable conditions, can use this Deep Draft Route. However the recommended underkeel clearances stated below should be taken into consideration.

The waypoints indicating the selected route are designated, as follows:

1. Waypoint A 50˚19.4'N, 0˚02.0'E.
2. Waypoint B 50˚29.8'N, 0˚58.6'E.
3. Waypoint C 50˚35.2'N, 1˚13.1'E.
4. Waypoint D 50˚40.2'N, 1˚21.5'E.
5. Waypoint E 50˚54.0'N, 1˚28.7'E.
6. Waypoint F 51˚04.7'N, 1˚40.6'E.
7. Waypoint G 51˚10.2'N, 1˚44.1'E.
8. Waypoint H 51˚15.7'N, 1˚53.7'E.
9. Waypoint I 51˚22.0'N, 1˚58.6'E.
10. Waypoint J 51˚33.8'N, 2˚20.3'E.
11. Waypoint K 51˚47.5'N, 2˚36.3'E.
12. Waypoint L 51˚53.0'N, 2˚44.9'E.
13. Waypoint M 51˚56.8'N, 2˚53.7'E.
14. Waypoint N 51˚57.2'N, 2˚51.5'E.
15. Waypoint O 52˚02.7'N, 2˚41.3'E.
16. Waypoint P 52˚01.8'N, 3˚53.6'E.

Vessels proceeding to Anchorage Area No. 1 (52˚06'N., 2˚27'E.) may go direct from Waypoint K to Waypoint O. Vessels proceeding to Anchorage Area No. 2 (51˚56'N., 2˚55'E.) may go from Waypoint L to Waypoint M. Vessels proceeding into the Eurogeul may go from Waypoint L to Waypoint N, and then to Waypoint P at the E end of the channel.

Deep Draft Routes.—The above northeastbound route is described in detail in a Deep Draft Planning Guide (HP 8), which is published by the Hydrographer of the Royal Netherlands Navy.

There is no official Deep Draft Guide for the southwestbound route. A track, which may be followed by very large vessels, runs from Sullom Voe (Shetland Islands) to the English Channel. This track, having merged with the two-way Deep Water Route in the vicinity of the Off Botney Ground TSS, enters the Noord Hinder Junction Precautionary Area and then follows the southwestbound traffic lanes of the Noord Hinder South TSS and Dover Strait TSS. The British authorities do not endorse these two routes in every detail as both pass through areas which have not been surveyed to modern standards.

In addition, the mandatory provisions of the Deep Water Route in the vicinity of the Off Botney Ground TSS do not apply to vessels sailing between ports on the E coast of the United Kingdom.

Both the northeastbound and the southwestbound Deep Water Routes are shown in the Mariners' Routeing Guide (Chart 5500), which is published by the United Kingdom Hydrographic Office.

Deep-draft vessels may have to make use of the height of tide in order to have a safe underkeel clearance in areas where the depths are critical. This applies especially to southwestbound vessels in the area lying between The Varne and The Ridge.

The recommendations stated below have been extracted from the Netherlands Deep Draft Planning Guide for vessels using the northeastbound Deep Draft Route.

Vessels constrained by their draft should display the appropriate lights and shapes.

The passage should not be undertaken unless both the vessel's GPS and radar equipment are functioning correctly.

A pilot with experience in VLCCs should be employed for the whole route, at least for the vessel's first transit.

Accurate navigation to maintain the selected track is essential. In particular, drift and speed over the ground should be calculated in advance to help maintain the route and initiate turns correctly.

Underkeel clearances.—The British authorities recommend the following underkeel clearances for deep-draft vessels proceeding through Dover Strait at 12 knots:

Northeastbound Vessels—Underkeel Cclearances		
Between Waypoints	**Vessel heading**	**Underkeel clearance**
Toward B	072˚	6.2m
B to C	059˚	6.0m
C to D	048˚	6.0m
D to approx. 50˚44'N	018˚	9.5m
Approx. 50˚44'N to E	018˚	7.6m
E to approx. 51˚00'N	035˚	5.7m
Approx. 51˚00'N to F	035˚	5.1m
F to approx. 51˚06'N	021˚	5.3m
Approx. 51˚06'N to G	021˚	5.1m
G to approx. 51˚13'N	048˚	5.1m
Approx. 51˚13'N to H	048˚	6.4m
H to I	026˚	5.0m
I toward J	049˚	6.0m

A recent British study has shown that an underkeel clearance of 9.5m is required between Vergoyer N Lighted Buoy (50˚40'N., 1˚22'E.) and ZC2 Lighted Buoy (50˚53'N., 1˚31'E.) for a vessel with a draft of 22m during SW storms.

Waypoint No. 20 and Waypoint No. 21 were not covered by the study. However, a clearance of 6.1m has been recommended between these two waypoints in winds up to force 7, 7.0m in winds up to force 8, and 8.4m in winds up to force 9.

Southwestbound Vessels—Underkeel Cclearances		
Between Waypoints	**Vessel heading**	**Underkeel clearance**
No. 21 to No. 21A	220˚	6.0m
No. 21A to approx. 51˚14'N	204˚	5.1m
Approx. 51˚14'N to No. 22	204˚	5.3m
No. 22 to approx. 51˚04'N	228˚	5.3m
Approx. 51˚04'N to No. 23	228˚	6.3m
No. 23 to No. 24	204˚	6.1m
No. 24 to No. 25	222˚	7.6m
No. 25 to approx. 50˚51'N	235˚	7.3m
Approx. 50˚51'N to No. 26	235˚	7.1m
No. 26 toward No. 27	239˚	7.1m

These underkeel clearances only apply on the normal heading for each of the various legs of the passage. If the vessel is compelled to make a large change of course, bringing storm waves or swell on the beam, then the stated clearances may be insufficient and other measures, such as a reduction in speed, may be required.

The underkeel clearances recommended take into account the course for each leg of the passage, the vessel's movement due to storm waves or swell, uncertainties in charted depths, the vessel's draft, the risks of negative tidal surges, and squat of 1m at a speed of 12 knots.

The clearance should be increased by 0.7m if the vessel's speed is 15 knots; but may be decreased by 0.6m if the vessel's speed is 8 knots.

Tide levels for the passage should be predicted in advance in order that available searoom is known in case of emergency.

The most critical area of the route is in the vicinity of Twin Lighted Buoy (51˚32'N., 2˚23'E.). The height of tide and depth of water in this area should be obtained from HCC Rotterdam before passing Bassurelle Lighted Buoy.

Sandwaves.—Sandwaves encroach, in places, into the traffic lanes located in Dover Strait and the S part of the North Sea.

Sandwaves of significance to vessels have been discovered in areas lying about 4 miles S and 3 miles SW of Bassurelle Lighted Buoy; between the NE end of Sandettie and Fairy Bank, 8 miles NE; within an area 2 to 5 miles NW of the NE end of Sandettie; in an area lying about 4.5 miles NW of Garden City Lighted Buoy (51˚29'N., 2˚18'E.); off the SW end of South Falls; within the southwestbound traffic lane E of South Falls; and off the SW end of Sandettie.

Caution

6.6 Many wrecks sunk during the two World Wars lie in Dover Strait, the S part of the North Sea, and in the Thames Estuary. Although the least depths over most wrecks critical to navigation have been established by wire sweeping, new wrecks, formerly unknown, have been found during recent surveys. Consequently, it must be assumed that other unknown wrecks also lie within the traffic lanes.

In addition, wrecks previously covered by sand banks may be uncovered. Strong tidal currents may also cause deep scouring into which wrecks may capsize. Generally, this results in an increase of depth over the wreck. However, a decrease in the depth over the wreck can result from the same cause.

Numerous submarine cables cross Dover Strait and may best be seen on the charts.

The shipping lanes in Dover Strait and the S part of the North Sea are among the busiest in the world and pose serious problems for the safety of navigation. The existence of the TSS schemes within these waters does not imply that the traffic lanes have been adequately surveyed and the existence of sandwave areas, where depths may be less than charted, should be taken into account by deep-draft vessels.

Within Dover Strait and its adjacent waters, one of the greatest risks to navigation is that of collision, especially in poor visibility. In addition to vessels transiting the TSS traffic lanes and inshore traffic zones, there are concentrations of fishing boats and recreational craft during the summer months, and regular cross-channel ferry traffic including ro-ro vessels, jet foils, hovercraft, and high-speed catamarans.

Cross-channel ferries and other vessels in the inshore traffic zones may alter course near the limits of the traffic lanes in order to cross the latter at right angles.

The main ferry ports of the United Kingdom are Folkestone (51°05'N., 1°12'E.), Dover (51°07'N., 1°20'E.), and Ramsgate (51°20'N., 1°25'E.). Ferries from these ports run mainly to Calais (50°58'N., 1°51'E.), Dunkerque (51°03'N., 2°21'E.), and Oostende (51°14'N., 2°55'E.). Most of the cross traffic is therefore concentrated in the area between Sandettie and The Ridge, 20 miles SW.

Cross-channel traffic also runs from ports in the Thames Estuary and Harwich (51°57'N., 1°18'E.) to Zeebrugge (51°20'N., 3°12'E.) and Vlissingen (51°27'N., 3°35'E.). This cross traffic tends to concentrate in the vicinity of the Foxtrot 3 Lightvessel (51°24'N., 2°01'E.) and the area between the N end of Sandettie and Fairy W Lighted Buoy, 6 miles NNE.

It has been reported that rogue vessels traversing the TSS may be encountered, especially in the area between MPC Lighted Buoy (51°06'N., 1°38'E.) and F2 Lighted Buoy (51°21'N., 1°56'E.). Such vessels often proceed in a direction which is nearly opposite to that of the TSS traffic lane. Frequently this leads to nearly head-on situations in the area to the NW of Sandettie where the possibility for deep-draft vessels to alter course to starboard is limited.

All vessels should be aware that deep-draft vessels may not be able to alter course in critical areas without the danger of running aground. A good lookout should be kept for vessels constrained by their draft and showing the appropriate signals.

Vessels coming from the English Channel and bound for the Thames Estuary and the E coast of England usually cross the southwestbound traffic lane in the stretch between the S end of South Falls and Varne Lightvessel.

Due to the set caused by cross currents, vessels frequently drift down onto buoys. Subsequently, considerable damage is often done by vessels to South Falls Lighted Buoy (51°14'N., 1°44'E.), CS4 Lighted Buoy (51°09'N., 1°34'E.), and CS3 Lighted Buoy (50°52'N., 1°03'E.).

Vessels using the Deep Draft Route leading NW of Sandettie should take into account the close proximity of vessels using the southwestbound traffic lane. Such vessels are recommended to avoid overtaking in the vicinity of Sandettie.

Vessels are advised to navigate with extreme caution in the area between Sandettie and Fairy W Lighted Buoy as the Deep Draft Route and the main traffic lane rejoin here.

Vessels should be aware that their speed may need to be reduced in certain areas in order to reduce the effect of squat. In addition, rolling and pitching should also be taken into account.

Squat (shallow water effect) may decrease the forward draft on vessels of 200,000 to 400,000 dwt, as follows:

1. At a speed of 5 knots:
   a. Keel clearance 2m—Increase of 0.20m.
   b. Keel clearance 6m—Increase of 0.17m.
   c. Keel clearance 10m—Increase of 0.15m.
2. At a speed of 9 knots:
   a. Keel clearance 2m—Increase of 0.66m.
   b. Keel clearance 6m—Increase of 0.56m.
   c. Keel clearance 10m—Increase of 0.49m.
3. At a speed of 14 knots:
   a. Keel clearance 2m—Increase of 1.74m.
   b. Keel clearance 6m—Increase of 1.45m.
   c. Keel clearance 10m—Increase of 1.25m.

Rolling may increase a vessel's draft, as follows:

1. With a beam of 45m:
   a. Rolling 3°—Increase of 1.2m.
   b. Rolling 6°—Increase of 2.4m.
   c. Rolling 10°—Increase of 3.9m.
2. With a beam of 60m:
   a. Rolling 3°—Increase of 1.6m.
   b. Rolling 6°—Increase of 3.1m.
   c. Rolling 10°—Increase of 5.2m.
3. With a beam of 75m:
   a. Rolling 3°—Increase of 2.0m.
   b. Rolling 6°—Increase of 3.9m.
   c. Rolling 10°—Increase of 6.5m.

Pitching may increase a vessel's draft, as follows:

1. With a length of 260m:
   a. Pitching 0.5°—Increase of 1.1m.
   b. Pitching 1.0°—Increase of 2.3m.
   c. Pitching 1.5°—Increase of 3.4m.
2. With a length of 350m:
   a. Pitching 0.5°—Increase of 1.5m.
   b. Pitching 1.0°—Increase of 3.1m.
   c. Pitching 1.5°—Increase of 4.6m.
3. With a length of 450m:
   a. Pitching 0.5°—Increase of 2.0m.
   b. Pitching 1.0°—Increase of 3.9m.
   c. Pitching 1.5°—Increase of 5.9m.

Cap d'Antifer to Fecamp

6.7 Cap d'Antifer, previously described in paragraph 5.18, is a rounded perpendicular cliff, about 122m high. The coast from the cape to the town of Ault, about 55 miles NE, consists of gray or white chalky, vertical cliffs, bordered by drying rocks; the cliffs are broken by valleys, where the ports are situated.

Etretat (49°42'N., 0°12'E.), situated about 2 miles NE of Cap d'Antifer, is a small town that lies within the valley of Etretat. A conspicuous monument in the form of a spire, sometimes illuminated in summer, stands on the E cliff of the valley. L'Aiguille d'Etretat, 51m high, is a pointed detached rock located close off the W cliff.

Yport (49˚44'N., 0˚19'E.) is a small town where landing can be made, standing close SE of Pointe du Chicart, 6.5 miles NE of Cap d'Antifer. A small stone jetty, at the head of which stands a beacon, projects from the shore abreast Yport. Range lights, in line bearing 166˚, lead to the best location for beaching boats.

Tides—Currents.—Currents around Cap d'Antifer run NNE, NE, and ENE towards Fecamp on the flood. Ebb currents flow WSW, SW, and SSW towards Cap de la Heve.

Eddies occur close inshore with both currents. One such eddy, known locally as "Les Hardiers," runs E during the entire ebb current, and extends to about 1 mile offshore.

Fecamp (49˚46'N., 0˚22'E.)

World Port Index No. 35830

6.8 Fecamp, lying in a valley close S of Point Fagnet, is a small port with facilities for commercial vessels, fishing boats, and pleasure craft. The harbor consists of Avant-port, Arriere-port, Bassin de Mi-Maree, and two non-tidal basins.

Winds—Weather.—With winds from the W through N to NE, visibility is very good, and even in rainy weather, loss of visibility is only temporary.

With strong winds from the SW through N to NE, especially with an ebb current, a dangerous bar forms between the jetties, which may at times completely block the entrance. The effect of a strong swell is felt in the entrance channel, but gradually weakens in Avant-port and Arriere-port.

Winds from the ENE through S to WSW, may result in reduced visibility, especially in cold weather.

Tides—Currents.—Tides at the port rise about 8.3m at MHWS and 6.8m at MHWN.

Off the entrance jetties, the NNE flood current runs from about 4 hours before HW at the harbor until HW. The SSW ebb current starts about 30 minutes after HW at the harbor. The flood current may attain a rate of 2.9 knots at springs. The ebb current is weaker. At about 140m within the jetty heads, the currents flow with the channel. Both currents attain rates of 1 knot at springs and 0.5 knot at neaps.

Depths—Limitations.—The entrance channel is 70m wide and lies between two parallel jetties. The N jetty stands on the SW edge of the drying rocks fronting Pointe Fagnet. A shingle beach extends S from the S jetty.

Avant-port is located on the S side of the entrance channel and has a depth of 1.5m. There is a quay, 150m long, at the E side, but a marina occupies most of this basin.

Bassin Berigny is entered at the SE side of Avant-port through a gate, 16.5m wide, with a sill depth of 1.3m. This basin is used by fishing vessels and pleasure craft.

The entrance channel leads directly into Arriere-port, the inner harbor, through a passage, 40m wide, with a depth of 1.5m. A quay, 250m long, is situated in the S part of this harbor. It is dredged alongside to depth of 7m and used by commercial vessels. The remainder of the harbor is used by fishing vessels and pleasure craft.

Bassin Freycinet is entered from Arriere-port via Bassin de Mi-Maree. The passage leading into Bassin de Mi-Maree is 20m wide and is spanned by a revolving bridge. The gate at the entrance of Bassin Freycinet is 18m wide and has a sill depth of 0.8m. The basin has 450m of berthage with depths up to 6.3m alongside.

Due to the difficulty of maneuvering in the entrance channel, vessels entering Bassin Freycinet are limited to a length of 100m and a beam of 17m. Vessels up to 105m in length can enter Arriere-port with prior permission. Vessels can be accommodated with drafts up to 7m at springs and 5.5m at neaps.

Aspect.—The chapel of Notre-Dame-du-Salut, with a black roof; a television mast; and a signal station, consisting of a disused light tower surmounted by a blockhouse, are situated in the vicinity of Pointe Fagnet and are conspicuous from seaward. A prominent chimney stands 0.8 mile E of the point. The square tower of Saint-Etienne, with its four pinnacles, and the belfry of an abbey, consisting of a large square tower with a pointed roof, stand nearly 0.8 mile, and 1 mile, respectively, SSE of Pointe Fagnet. A conspicuous water tower rises on high ground SE of the town.

Pilotage.—Pilotage is compulsory within 2 miles of the heads of the jetties for vessels over 45m in length. Vessels should send a request for pilotage and an ETA 24 hours in advance or at least 12 hours before HW or on leaving their last port of call if less than 4 hours distant. This request message should include vessel length, overall dimensions, draft, and whether equipped with a bow thruster or other maneuvering capability. On arrival off the port vessels should contact the pilot station by VHF for instructions. Pilots board about 1 mile WNW of the jetties.

Regulations.—Vessels over 1,600 grt carrying hydrocarbons or dangerous substances must report to the port authority before entering the harbor.

Permission for vessels over 100m in length to enter is only given after agreement between the port authority, the pilot, and the agent.

Signals.—International port traffic signals are shown from the root of the S jetty (see paragraph 1.1).

Anchorage.—A designated anchorage area (Waiting Area), with a radius of about 0.5 mile, lies centered about 1.3 miles W of the N jetty. This anchorage has depths of 10 to 16m, sand and shells, bad holding ground and is exposed to winds from the SW through N to NE. The sea rises rapidly and ves-sels should only anchor in good weather. The best anchorage lies in a depth of 10m at the ESE edge of the area.

Directions.—A lighted range, bearing 082˚, indicates the approach to the harbor. However, it is reported that the lights of the town make the range lights difficult to distinguish.

It is recommended that vessels enter at the end of the flood current about 30 minutes before HW, which is the time of slack water.

After approaching the entrance using the range, vessels should adjust course to about ENE in order to pass as close N as possible to the head of the S jetty. This approach allows for the yaw as the bow enters slack water while the stern remains in the current. The effect of any swing should result in the ves-sel lining up with the entrance channel.

Caution.—Entry is often difficult with strong offshore winds or with a strong swell from the W.

Tidal heights at the port may be affected by strong winds.

Depths in the entrance channel may be less than charted due to the accumulation of silt and shingle.

Fecamp to Dieppe

6.9 The valley of Saint-Pierre-en-Port indents the coast about 5 miles ENE of Fecamp and a prominent chapel stands on its E slope.

The valleys of Les Petites-Dalles and Les Grandes-Dalles, separated by a tall cliff, lie about 1.5 miles and 1.8 miles ENE of Saint-Pierre-en-Port.

Paluel Nuclear Power Station (49˚52'N., 0˚38'E.), with four conspicuous towers 72m high, is situated 6.5 miles ENE of Saint-Pierre-en-Port. A pylon and a water tower, both prominent, stand close SW and about 1.3 miles S, respectively, of the power station.

Two short breakwaters protect the entrance of a channel leading to the power station. A prohibited area, marked by a lighted buoy, surrounds the cooling water pipelines serving the power station.

Saint-Valery-en-Caux (49˚52'N., 0˚43'E.) (World Port Index No. 35820), a small harbor, lies at the entrance of a narrow valley, between two white cliffs. It is used by small coasters, fishing boats, and recreational craft.

The harbor consists of an Avant-port and a wet dock. The entrance, 60m wide, lies between two jetties. A shingle bank, which dries, forms a bar close outside the entrance. The Avant-port dries and has a quay, 100m long, at its E side. The wet dock, which is mostly used as a marina, is entered through a gate, 9m wide, and has a depth of 3.5m. Vessels up to 50m in length and 8m beam with drafts up to 4.5m at springs and 3m at neaps can enter. Local knowledge is required.

A prominent water tower, 51m high, stands about 0.8 mile SSW of the harbor entrance. A conspicuous television mast, 82m high, stands about 1.2 miles ESE of the harbor entrance.

6.10 **Pointe de Scotteville** (49˚48'N., 0˚50'E.), located 4.8 miles ENE of Saint-Valery-en-Caux, is fronted by large blocks of sandstone extending up to about 0.3 mile offshore. A conspicuous water tower stands close S of the point. A belfry situated 0.2 mile SW of the water tower shows prominently above the surrounding woods. A visible stranded wreck, containing explosives, lies about 1.7 miles WSW of the point.

The valley of Quiberville, at the mouth of the Saane, lies 3.5 miles E of Pointe de Scotteville and is the largest and deepest valley in this vicinity. A prominent water tower, with a church situated close SE of it, stands at the W side of the valley.

Pointe d'Ailly (49˚55'N., 0˚58'E.), located 5 miles ENE of Pointe de Scotteville, is fronted by dark, vertical cliffs and has a rounded summit. A main light is shown from a prominent square tower, 24m high, standing on the point.

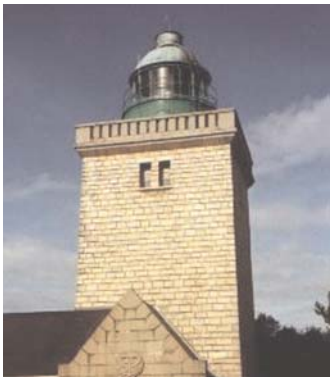
Roches d'Ailly, consisting of large drying sandstone blocks, border the point and extend up to about 0.5 mile offshore. A lighted buoy, moored about 1.5 miles NNW of the light, marks a dangerous wreck.

Grande Ecamias (49˚59'N., 0˚59'E.), with a least depth of 12m, and Petits Ecamias, with a least depth of 11m, lie about 4 and 7 miles, respectively, N of Pointe d'Ailly. These banks are dangerous in a heavy sea and consist of sand, gravel, and shell.

The valley of Pourville, a conspicuous break in the coastal cliff, is located about midway between Pointe d'Ailly and Dieppe, 5 miles E.

Caution.—A submarine cable, which may best be seen on the chart, extends seaward from the vicinity of Saint-Valery-en-Caux.

Numerous wrecks, which may best be seen on the chart, lie off the coast between Fecamp and Dieppe.



Pointe d'Ailly Light

Dieppe (49˚56'N., 1˚05'E.)

World Port Index No. 35810

6.11 Dieppe lies in a valley at the mouth of the Riviere Arques. The port, which is primarily a cross-channel ferry terminal, also has facilities for cargo vessels, fishing boats, and recreational craft.

The harbor consists of Avant-port, Arriere-port, Bassin du Canada, Bassin de Paris, and Bassin Duquesne.

Winds—Weather.—The most frequent winds are from the SW and W; they cause a heavy sea off the entrance of Dieppe.

Although the trend of the coast shelters it from SW winds, the waves sweep around Pointe d'Ailly and break with violence on the beach.

During bad weather from the NW through N to NE, the sea is very high at the entrance of the harbor during the outgoing current, and a swell is felt in Avant-port.

The geographical position of the valley of Dieppe modifies the direction of the wind; thus E winds turn to SE and SSE at the entrance of the port and along the channel.

When the wind is from the W to seaward of the port it will be from the SW at the entrance and from the S farther inside.

Tides—Currents.—The tides rise about 9.3m at springs and 7.4m at neaps. The LW slack period is shorter than the HW slack.

In good weather, the rate of the tidal current does not exceed 0.5 knot between 1 hour before HW and HW, both at springs and neaps. During W winds, HW may occur 45 minutes late, and during SE winds up to 20 minutes early. The tidal currents within the harbor run directly in and out with no eddies. At a position 0.4 mile off the port entrance the E tidal current commences 5 hours before HW and attains a rate of 2 knots at springs. The W tidal current commences 40 minutes after HW and attains a rate of 1.5 knots at springs.

Depths—Limitations.—The port is entered directly from seaward through a channel, maintained at a depth of 5m, which leads between two converging breakwaters. The W breakwater

extends about 200m more to seaward than the E breakwater. Within the breakwaters, the channel narrows to a width of 75m.

A 12° sector, centered on a line bearing 318° from the light standing in front of the Chapel of Notre Dame de Bon Secours, extends 5 miles seaward. The area within this sector was systematically surveyed for obstructions by sonar in 1995.

Avant-port has a maintained depth of 4.5m. Bassin Duquesne, used by recreational craft and fishing vessels, is entered from the SW part of Avant-port through a lock, which is 15m wide and has a depth of 3.5m on the sill. A marina is situated at the NW side of Avant-port.

Terminal Multivrac is situated at the NE side of Avant-port. It has a quay, 100m long, with a depth of 6m alongside.

Terminal Transmanche, with a depth of 6m alongside, is situated close S of Terminal Multivrac and is used by cross-channel ro-ro ferries.

Arriere-port, with depths of 2.5 to 4m, is entered from the SE part of Avant-port through a passage, 37m wide, which is spanned by a a swing bridge. A ro-ro berth is located at Quai Guynemer, at the SE end of this basin.

Bassin du Canada, with 300m of quayage, is entered from the SE end of Arriere-port through a lock, which is 23m wide and has a depth of 1m over the sill. This lock is operated from 2 hours before HW to 1 hour after HW.

Bassin du Paris, with a depth of 6.5m, is entered directly from Bassin de Canada. Quai de Norvege, on the N side, is 683m long and Quai du Maroc, on the S side, is 600m long. A ro-ro berth is situated in the NW part of this basin.

The harbor is only accessible to large vessels from 2 hours before to 1 hour after HW due to the strength of the tidal currents running across the entrance.

The port has facilities for bulk, container, general cargo, ro-ro, and reefer vessels. Vessels up to 164m in length and 21.6m beam can be accommodated in the harbor, with drafts up to 8m at springs and 7m at neaps.

Aspect.—DI Lighted Buoy, moored about 2.5 miles WNW of the harbor entrance, marks the approach to the port.

The conspicuous Chapel of Notre Dame de Bon Secours, with a large belfry, stands on the cliffs, 0.3 mile SSE of the head of the E breakwater. A light structure, 4m high, stands in front of this chapel. A prominent radio mast, 165m high, is situated 2 miles ESE of the chapel.

A prominent signal station stands close N of the chapel. A prominent fortress-type chateau is situated midway up the cliff, about 0.9 mile SW of the harbor entrance. A conspicuous silo tower stands on the S side of Bassin de Canada.

The cliffs surrounding the port are reported to be radar conspicuous.

Pilotage.—Pilotage is compulsory within an area extending 4 miles seaward from the breakwaters for all vessels carrying hydrocarbons or dangerous substances and other vessels over 50m in length.

Vessels should send a message to the pilot station 5 hours in advance stating their ETA at DI Lighted Buoy, their draft, and whether or not a pilot is required.

Vessels should then contact the pilot station on VHF channel 12 at least 3 hours prior to their original ETA stating any delay over 2 hours or any incapacity to make the tide.

Pilots board between 1 mile and 2 miles from the breakwaters.

Vessels under 50m in length and equipped with VHF are not obliged to take a pilot. However, they must advise the port authorities in the same manner as other vessels.

Regulations.—All vessels should send a message to the harbormaster 24 hours prior to arrival at DI Lighted Buoy stating their ETA, length, and draft.

All vessels should then contact the harbormaster on VHF channel 16 on arrival to obtain instructions. A continuous VHF watch must be maintained until berthed.

Fishing vessels and small craft are prohibited from navigating in the approach to the port when the entry or departures signals are displayed.

Special regulations and reporting procedures apply to vessels over 1,600 grt transporting dangerous cargo in bulk in the approaches to the French coasts of the North Sea, the English Channel, and the Atlantic Ocean between the Belgian border and the Spanish border.

For further details of these special procedures, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

In order to avoid impeding access, anchoring, stopping, or fishing are prohibited within a triangular controlled navigation zone fronting the port. This zone, which may best be seen on the chart, extends up to about 1 mile NW and NE from the harbor entrance. All vessels intending to enter the zone must receive permission from the port authorities.

Signals.—International traffic signals regulating entry and departure are shown by day and at night from the signal mast at the root of the W breakwater (see paragraph 1.1).

When dredges are operating or the channel is obstructed, a yellow light is shown at the same level and to the right of the main signal.

A green light shown above and to the right of the main signal indicates the entry of a ferry. A red light similarly shown indicates a ferry departing.

Anchorage.—The anchorage for vessels waiting to enter the port lies in the vicinity of DI Lighted Buoy (49°57'N., 1°01'E.). There are depths of 8 to 12m; the bottom is sand and shingle or sand and shells, good holding ground.

It is reported (1995) that an area of the bottom within a radius of 1 mile from the lighted buoy has been systematically surveyed by sonar for any obstructions.

The recommended anchorage lies, in a depth of 8m, about 0.4 mile ENE of the lighted buoy. This anchorage is exposed to winds from the W through N to NE and in such conditions vessels may prefer to seek shelter elsewhere.

Caution.—An explosive dumping ground area, which may best be seen on the chart, lies centered about 1.5 miles NNE of the harbor entrance.

Several wrecks lie in the approaches to the harbor and may best be seen on the chart.

A submarine cable, which may best be seen on the chart, extends seaward from the shore, 0.8 mile WSW of the port entrance.

It is reported (2001) that high speed ferries may be encountered in the approaches to the port from March to October.

Dieppe to Le Treport

6.12 The coast from Dieppe to Le Treport, about 14 miles NE, consists of high steep chalk cliffs broken by several valleys.

Mont Jolibois, with a round treeless summit, rises above a perpendicular cliff about 10 miles NE of Dieppe. The valley of Criel-sur-Mer, close E, is the widest in this vicinity. The valley of Mesnil-Val, about 1 mile farther NE, is also conspicuous.

The shore is fronted by a rocky bank which dries and extends up to about 0.5 mile seaward.

Ridens de Belleville (49˚59'N., 1˚09'E.), a group of shoal patches, has a least depth of 7m and lies centered 3.5 miles NE of the entrance to Dieppe harbor.

Ridins de Neuvillette, a group of narrow sandbanks, lies centered 8 miles NE of the entrance to Dieppe harbor. These sand banks have a least depth of 7.2m and extend up to about 1.8 miles offshore.

Ridens de Dieppe (50˚06'N., 1˚06'E.), a group of shoal patches, lies centered 10 miles N of the entrance to Dieppe harbor. This group has a least depth of 7.4m and is formed of sand and gravel.

Roches du Muron, a drying rocky bank, fronts the coast 2.5 miles SW of Le Treport and extends up to about 0.4 mile offshore.

Ridens de Treport (50˚06'N., 1˚18'E.), with a least depth of 5.1m, lies about 2.8 miles NW of the entrance to Le Treport.

Banc Franc-Marque, with a least depth of 3.6m, lies about 2 miles N of the entrance to Le Treport.

Penly Nuclear Power Station (49˚59'N., 1˚13'E.) stands near to the shore, 5.4 miles NE of Dieppe. It is fronted by a prohibited area, which extends up to 0.8 mile seaward and is marked by lighted buoys. A narrow winding channel leads between short breakwaters to the power station.

A prominent radio mast stands about 0.8 mile SE of the power station.

Caution.—Numerous wrecks lie along this stretch of the coast and may best be seen on the chart.

A former mined area, which is open to surface navigation, is still considered to be dangerous by the French authorities with regard to anchoring, trawling, or carrying out any seabed activities. It is bound by a line joining the following positions:

a. 50˚08.0'N, 1˚06.5'E.
b. 50˚16.5'N, 1˚13.5'E.
c. 50˚16.0'N, 1˚20.0'E.
d. 50˚06.5'N, 1˚14.0'E.

Le Treport (50˚04'N., 1˚22'E.)

World Port Index No. 35800

6.13 Le Treport, situated at the mouth of La Bresle, is a small port used by commercial vessels, fishing boats, and recreational craft. It consists of an Avant-port, which dries, and two wet basins.

Le Treport stands on the SW side of the harbor and the smaller town of Mers-les-Bains stands on the NE side.

Tides—Currents.—The tides rise 9.4m at springs and 7.5m at neaps. Strong onshore winds cause a heavy scend in the outer harbor.

Depths—Limitations.—The harbor entrance, 60m wide, is located between two breakwaters, which are bordered by drying banks of shingle and mud. The channel leading into the entrance dries 2m. Inside the breakwaters the channel narrows to a width of 30m.

Several quays border Avant-port and dry 4 to 5m, with a bottom of soft mud. Part of Quai Bellot, on the N side, is used by recreational craft.

Port du Peche et de Plaisance is entered from the SE end of Avant-port through a lock, 28m long and 9.5m wide. It is used by fishing vessels and recreational craft.

Port du Commerce is entered from the NE end of Avant-port through a dock gate, which is 19m wide and has a depth of 2m on the sill.

The port has facilities for bulk and general cargo vessels. Vessels up to 7,000 dwt, 115m in length, and 16m beam can be accommodated with drafts limited to the height of tide minus 2m. Generally, vessels can enter with drafts up to 7m at springs and 4.4m at neaps.

Aspect.—A main light is shown from a prominent structure, 14m high, standing on the head of the W breakwater.

A conspicuous silo, 53m high, stands on the N side of Port du Commerce, 0.5 mile ESE of the harbor entrance. A large prominent church tower stands about 0.4 mile SSE of the harbor entrance and can be seen over the houses. A large church stands at the base of the cliffs near Mer-les-Bains, about 0.7 mile ENE of the harbor entrance, and a prominent television mast is situated 0.6 mile E of it.

A conspicuous statue of the Madonna stands near the coast, about 1 mile NE of the harbor entrance. A prominent pylon is situated about 1.7 miles SE of the harbor entrance.

Pilotage.—Pilotage is compulsory for all vessels 45m or more in length. Vessels should contact the harbor by VHF 3 hours prior to HW and maintain a listening watch. Vessels should maintain a listening watch on VHF channels 16 and 12 when anchored in the Waiting Area. Generally, pilots board about 1.5 miles NW of the harbor entrance, 2 hours before HW.

Regulations.—A triangular area, within which anchoring and fishing are prohibited, extends up to 1 mile NW of the harbor entrance and may best be seen on the chart.

Anchorage.—A designated anchorage area (Waiting Area), with depths of 8 to 15m, sand and shells, lies centered 3 miles NW of the harbor entrance and can best be seen on the chart. This anchorage area, which is untenable with onshore winds, should only be used by vessels waiting to enter the port.

Caution.—An explosive dumping ground area, which may best be seen on the chart, lies centered about 2.8 miles NNE of the harbor entrance.

Several wrecks and obstructions lie in the approaches to the port and may best be seen on the chart.

Le Treport to Baie de Somme

6.14 **Adult** (50˚06'N., 1˚27'E.), a village, stands 4 miles NE of Le Treport. The coast between is formed by white or gray cliffs, 100m high, bisected by small valleys.

A main light (Adult) is shown from a prominent tower, 28m high, standing in the village and a conspicuous radio mast is situated close to it.

Adult Light

Between Adult and the Baie de Somme the coast is low and bordered by sand dunes, with a wooded background.

Cayeux-sur-Mer (50˚11'N., 1˚30'E.), a village, stands about 5 miles NNE of Adult. The prominent spire of a church situated in the village can be seen above the houses.

A main light is shown from a conspicuous tower, 32m high, standing about 1 mile NE of the village.

Cayeux-sur-Mer Light

A prominent structure is situated about 0.7 miles SW of the village. This structure consists of a series of pillars in the form of a truncated cone standing on a masonry base and surmounted by a black Saint-Andrew's cross.

Caution.—Numerous obstructions, which may best be seen on the chart, lie within an area extending up to 3.5 miles N and NW of Adult.

Baie de Somme

6.15 Baie de Somme (50˚14'N., 1˚34'E.), the estuary of the Riviere Somme, is entered between Pointe du Hourdel (50˚13'N., 1˚34'E.), located 2.5 miles NE of Cayeux-sur-Mer Light, and Pointe de Saint Quentin, 3 miles N. The bay faces W and is obstructed by drying sand banks.

Bancs de Somme extend up to about 1.5 miles seaward of the general line of the coast. These banks frequently vary in position and height. The outermost banks consist of very fine shifting sand and constitute a formidable danger to vessels grounding on them. In such cases the tidal currents wash away the sand from under the stem and the stern, causing the vessel to capsize or break up. With onshore winds a very rough sea occurs on these banks.

Quemer (50˚17'N., 1˚20'E.) and Bassurelle de la Somme (50˚13'N., 1˚20'E.), two banks of sand and shells, front the bay and extend up to 9.5 miles offshore. The sea breaks over these banks during bad weather.

Tides—Currents.—The tides at Cayeux-sur-Mer rise about 9.8m at springs 8m at neaps.

Outside the drying banks at the entrance to Baie de Somme, the tidal currents are mainly rotary, counterclockwise. They seem to attain their maximum rates as the drying banks are just covered or just about to be uncovered. In the vicinity of AT-SO Lighted Buoy, the incoming current flows NNE and begins about 4 hours before HW at Dieppe. It attains a velocity of about 2.7 knots at springs. The outgoing current flows SSW and begins about 1 hour 30 minutes after HW at Dieppe. It attains a velocity of about 2.5 at springs.

Winds from W often raise the sea level by up to 0.5m and winds from E lower it by the same amount.

Depths—Limitations.—A buoyed channel, which dries, leads E into the bay from AT-SO Lighted Buoy. This channel changes frequently.

Aspect.—A main light is shown from a conspicuous tower, 18m high, standing on Pointe du Hourdel (50˚13'N., 1˚34'E.).

AT-SO Lighted Buoy is moored about 3.8 miles WNW of Pointe du Hourdel.

Pilotage.—There is no pilot station in the bay, but unlicensed local pilots are available. The employment of such pilots is advised due to the frequent changes in the banks. Generally, pilots board near AT-SO Lighted Buoy.

Caution.—If vessels are unable to reach one of the harbors within the Baie de Somme before HW, they should proceed to a position seaward of the banks. Anchoring in the shelter of the banks is not advised because the shifting sands provide poor holding ground.

Local knowledge is required for entry into Baie de Somme.

6.16 Le Hourdel (50˚13'N., 1˚34'E.), a small harbor, lies between the S side of Pointe du Hourdel and a detached breakwater, 300m long. The basin dries and is used by recreational craft and fishing boats.

A main light is shown from a prominent tower, 18m high, standing on Pointe du Hourdel.

Saint-Valery-sur-Somme (50˚11'N., 1˚39'E.) (World Port Index No. 35790), a small harbor, is situated on the S shore of the bay, 2.5 miles ESE of Pointe du Hourdel. It is used by small commercial vessels and recreational craft.

The entrance channel leading to the harbor dries 5.8m and is marked by buoys and beacons. The fairway stays dry until the incoming tide reaches it, about 2 hours before HW.

The harbor is about 1,700m long and 60m wide. It is bordered on the E side by a breakwater and on the W side by an embankment and a quay. The bottom alongside the quay consists of mud and dries 5m. The tides rise about 10.1m at springs and 8.1m at neaps. Small vessels up to 50m in length and 3.6m draft can be handled at HWS.

Le Hourdel Light

Canal de la Somme, connecting the small port of Abbeville with the sea, is entered through a lock 260m long and 50m wide. The locks are accessible for 2 hours, and sometimes 3 hours, during each tide; the sills of the lock are 5m and 5.3m above chart datum.

The canal permits the passage of vessels up to 45m in length, 8m beam, and 3.4m draft. Vessels navigating this canal should request the opening of bridges by sounding a prolonged blast on the whistle.

Abbeville, located 7 miles SE of the lock, extends for about 0.3 mile along the N side of the canal. There is a new berth that does not have a height restriction, but vessels using the old berths are limited by a fixed railway bridge to a vertical clearance of 6.4m.

Le Crotoy (50˚13'N., 1˚38'E.), a small harbor, is used by fishing boats and recreational craft. It is formed by a creek protected on the W side by a promontory on which stands the town. A quay, on the S side of the harbor, dries 6m. A narrow buoyed channel leads to the harbor.

Baie de Somme to Pointe de Lornel

6.17 The coast between Pointe de Saint Quentin and Pointe du Touquet, 15.5 miles N, is low, sandy, and bordered by dunes. This stretch of coast is indented by the estuary of the Authie Riviere, which is encumbered by drying banks.

The estuary lies between Pointe de Routhiauville, located 6 miles N of Pointe de Saint Quentin, and Pointe du Haut-Banc, 2 miles N. The drying banks shift frequently and are dangerous. A narrow drying channel leads through the banks to the river and is used by local fishing boats.

A conspicuous water tower, 30m high, stands about 1 mile SSE of Pointe de Routhiauville.

Berck-Plage Light (50˚24'N., 1˚34'E.), a main light, is shown from a prominent tower, 45m high, standing on Pointe du Haut-Banc.

Several large hospital buildings and a church stand along the shore close N of the light and are conspicuous from seaward.

Pointe de Touquet (50˚32'N., 1˚35'E.) is located 8.7 miles N of Pointe du Haut-Banc. A main light is shown from a prominent orange tower, 56m high, standing about 1 mile S of the point.

Berck-Plage Light

Pointe de Touquet Light

The resort town of Le Touquet-Paris-Plage stands along the shore, W of the light tower. It is fronted by a conspicuous pyramidal glass structure, 27m high, and a several large buildings.

The estuary of the Riviere Canche lies between Pointe de Touquet and Pointe de Lornel, about 1.5 miles N, and is encumbered by drying banks. These banks extend up to about 1 mile seaward of the entrance and the sea breaks heavily over them during bad weather.

A light is shown from a red pylon, 11m high, standing on the NE bank of the estuary, about 0.8 mile NNE of Pointe de Touquet.

Etaples (50˚31'N., 1˚38'E.), a small harbor, lies at the head of the estuary, on the N bank. It is used by local fishing boats and recreational craft. An approach channel, which is buoyed and dries 5m, leads to the harbor. Its inner part lies between two training walls, which are covered at HW and marked by beacons. The channel changes frequently and local knowledge is required.

Caution.—Several offshore banks front this stretch of coast. They are described, along with the navigation aids, in paragraph 6.3.

Shellfish beds are located on the drying banks obstructing the estuary of the Authie Riviere.

Pointe de Lornel to Cap d'Alprech

6.18 The stretch of coast extending 6 miles N from Pointe de Lornel is bordered by dunes and backed inland by some conspicuous hills. The coast then turns cliffy for about 2 miles to Cap d'Alprech.

Mont Saint-Frieux, rising 2.8 miles NNE of Pointe de Lornel, consists of two prominent summits, 153m and 143m high, with several lesser elevations. The surveillance radar for Griz-Nez CROSS stands on this hill.

Saint Etienne-au-Mont, surmounted by a chapel with a prominent belfry, stands 2 miles inland about 2.5 miles SE of Cap d'Alprech.

The village of Equihen Plage, situated 1.5 miles SSE of Cap d'Alprech, can be distinguished from seaward by the straight rows of houses standing on the slope of a small hill.

Cap d'Alprech (50˚42'N., 1˚34'E.) terminates in a brown cliff and is bordered by drying rocks. A main light is shown from a prominent white tower, 17m high with spiral outer stairs, standing on the cape. A conspicuous radio mast stands about 0.3 mile ENE of the light.

Cap d'Alprech Light

The prominent ruins of Fort de l'Heurt, a blockhouse, stand on a patch of drying rocks at the edge of the drying coastal bank, 1 mile N of Cap d'Alprech.

Fort du Mont de Couple is situated close to the coast, 0.8 mile NNE of Cap d'Alprech. A former hovercraft terminal is situated close N of this fort.

Boulogne (50˚44'N., 1˚36'E.)

World Port Index No. 35760

6.19 Boulogne (Boulogne-sur-Mer) lies in the entrance to the valley of La Liane Fleuve, 2.5 miles NE of Cap d'Alprech. The port provides substantial facilities for commercial shipping, cross-channel ferries, and fishing vessels. It is protected by Digue Nord and Digue Carnot, two breakwaters.

Tides—Currents

The tides rise about 8.8m at springs and 7.2m at neaps.

The tidal currents are strong. They may be strengthened and prolonged by winds blowing in the same direction.

At a position about 0.6 mile W of the head of Digue Carnot, the flood current runs N and begins about 1 hour 50 minutes before HW. It attains a maximum spring rate of 4.8 knots about 1 hour after HW. The ebb current runs S and begins about 3 hours 30 minutes after HW. It attains a maximum spring rate of 4.2 knots. The currents are slightly less strong in the vicinity of the head of Digue Carnot.

Depths—Limitations

The main Approach Channel, which may best be seen on the chart, leads 4.5 miles E and passes through a gap in Bassure de Baas. This channel, which is navigation controlled, runs between the Dover Strait TSS and the port entrance.

The outer harbor, which is protected by breakwaters, has berths in its S part within Rade Carnot and Darse Sarraz Bournet. The channel leading through the outer harbor is dredged to a depth of 5m.

A channel leads SE between two jetties from the outer harbor into Avant-port. A ro-ro ferry terminal, with three berths, is situated in the SE part of Avant-port. Port de Marie, an open basin connected to the E side of Avant-port, is used by fishing boats and recreational craft. Bassin Napoleon, connected to the S part of Avant-port by a lock, 95m long and 21m wide, is used by fishing boats.

Bassin Loubet, used by commercial vessels and fishing boats, is connected to the SW part of Avant-port by a lock. The lock is 125m long and 25m wide, with a depth of 5m on the sill. This wet basin has a depth of 8.5m and can accommodate vessels up to 135m in length and 21m beam, with drafts up to 7.8m at springs and 7.5m at neaps. Vessels less than 100m in length can be locked at the regular operating times. Vessels 100m to 120m in length can be locked only from 2 hours 30 minutes before HW to 1 hour after HW. Vessels 120m to 135m in length can enter only during the period close to HW when both lock gates are open.

Rade Carnot, on the S side of the outer harbor, has a ro-ro ferry terminal. Ro-ro vessels up to 146m in length and 8.5m draft can be handled in the port.

Darse Sarraz Bournet is an open basin. Quai de l'Europe, on the W side, is 780m long and has a depth of 11m alongside. A bulk berth, on the E side, is 240m long and has a depth of 10m alongside. Vessels up to 35,000 dwt and 230m in length, with drafts up to 11m at springs and 10.5m at neaps, can be accommodated in this basin.

Aspect

ZC1 Lighted Buoy, marking the SW end of the Approach Channel, is moored about 4.4 miles W of the head of Digue Nord.

Boulogne Approach Lighted Buoy, marking the N side of the Approach Channel, is moored about 2 miles WNW of the head of Digue Nord.

The outer part of Digue Nord, except for the head, is submerged. Digue Carnot is partly covered at HW. A light is shown from a prominent tower, 22m high, standing at the head of Digue Carnot.

Colonne de la Grande Armee, a conspicuous monument, stands 1.9 miles E of the head of Digue Carnot.

The cathedral, with a prominent dome, is situated in the high part of the city, about 0.8 mile E of Avant-port. Two prominent radio masts stand 0.8 mile SE of the cathedral. In the background Mont Lambert, 189m high, rises about 1.5 miles ESE of the cathedral and is surmounted by a television mast.

A prominent tower surmounts the cement works at the NW side of Darse Sarraz Bournet basin. It is reported (2002) that several wind generators are situated in the vicinity of Digue Carnot.

Pilotage

The compulsory pilotage area extends up to 4 miles from the port entrance. Pilotage is compulsory for all vessels, except those less than 50m in length equipped with VHF.

Vessels should send a message to the harbormaster 12 hours in advance of arrival stating their length, beam, draft, last port of call, and pilotage requirements.

Vessels should then report by VHF 2 hours prior to arrival and confirm their ETA. All vessels must contact the port on VHF channel 12 on arrival in the roadstead.

Generally, pilots board about 0.4 mile S of Boulogne Approach Lighted Buoy (50˚45'N., 1˚31'E.). In bad weather, when embarking a pilot is not possible, vessels should remain in the vicinity of the outer anchorage and wait for instructions. Vessels must not enter Rade Carnot without instructions.

Regulations

Vessels are prohibited from stopping or anchoring in the Approach Channel.

Vessels not subject to pilotage must keep well clear of large vessels.

Special regulations and reporting procedures apply to vessels over 1,600 grt transporting dangerous cargoes in bulk in the approaches to the French coasts of the North Sea, the English Channel, and the Atlantic Ocean between the Belgian border and the Spanish border.

Such vessels should consider the Approach Channel leading E from the Dover Strait TSS toward the port to be a Mandatory Access Channel. Vessels arriving from Dunkerque or Calais are only required to use that section of the Approach Channel lying E of Boulogne Approach Lighted Buoy.

Such vessels must establish contact with the port on VHF channel 12 before entering the channel and maintain a listening watch on the same frequency.

Such vessels transiting the Approach Channel are deemed to be restricted in their ability to maneuver and must show the appropriate lights and shapes.

For further details of these special procedures, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

Signals

International port traffic signals are shown from masts situated at the E side of the entrance to Darse Sarraz Bournet, at each end of Jetee Sud-Ouest on the S side of the entrance to Avant-port, and at the central control tower standing close S of Jetee Sud-Ouest. For further information, see paragraph 1.1.

A yellow light is shown level with the top of the main traffic signal when dredges are operating in the harbor channel.

Anchorage

The outer anchorage area for large vessels lies midway between the gap in Bassure de Baas and Digue Carnot. It has depths of 14 to 16m and lies S of the Approach Channel, about 1 mile W of the head of Digue Carnot. When anchorage is untenable in this roadstead, vessels are advised to seek shelter off the English coast.

Directions

The main Approach Channel leads 4.5 miles E from the Dover Strait TSS to the harbor.

Rade d'Ambleteuse, 3 miles long, extends N from the port entrance and lies inside Bassure de Baas. It provides an approach for vessels coming from the N. Such vessels should pass E of Bassure de Baas Lighted Buoy (50˚48.5'N., 1˚33.0'E.).

By an agreement with the local fishermen, ferries transiting between the port and Cap Gris-Nez usually use a channel leading through Rade d'Ambleteuse.

The time at which vessels may enter Darse Sarraz Bournet depends on their draft and the height of tide. The best time for vessels with drafts over 9m to enter is from 2 hours before to 2 hours after HW.

Because of the strong currents, vessels over 180m in length, which need to maintain a relatively high speed for maneuvering, should enter either 3 hours before or 1 hour after HW, depending on their draft.

Caution

Numerous wrecks lie in the approaches to the port and may best be seen on the chart.

An area lying between Digue Nord and the shore is reserved for the use of pleasure craft.

Boulogne to Calais

6.20 The coast between the N side of Boulogne and Cap Gris-Nez, 7.5 miles N, consists of dark red cliffs with grassy summits, interspersed with beaches and dunes.

Landmarks along this stretch of coast include the residential buildings of Wimereux (50˚46.0'N., 1˚36.7'E.), with a prominent water tower; Ambleteuse (50˚48.6'N., 1˚36.4'E.), with a round fort situated close off the beach; Audresselles (50˚49.5'N., 1˚35.7'E.), with a prominent square belfry standing among the red-roofed houses; and Audinghen (50˚51.2'N., 1˚36.7'E.), with a prominent large belfry standing on the skyline.

Cap Gris-Nez (50˚52'N., 1˚35'E.), a precipitous headland, is 50m high and steep-to on its W side. A main light is shown from a conspicuous tower, 31m high, standing on the cape.

The CROSS surveillance station and a radar tower are situated close N of the light.

Cap Gris-Nez Light

Pointe du Riden, located 1 mile S of Cap Gris-Nez, is steep-to and marked by a beacon.

Between Cap Gris-Nez and Cap Blanc-Nez, 6 miles NE, the shore is bordered by a coastal bank and several reefs, which extend up to about 1.8 miles seaward in places. CA3 Lighted Buoy is moored at the outer side of the coastal bank, about 1.6 miles NW of Cap Blanc-Nez.

Cap Blanc-Nez presents a very white cliff to seaward and consists of several rounded grassy summits. The conspicuous Dover Patrol monument surmounts the highest summit.

A church, with a low square prominent belfry, stands at Tardinghen, 2 miles E of Cap Griz-Nez, and can be seen on the skyline. Mont Couple rises about 3 miles E of the church and can be identified by its summit, which slopes steeply to the S.

The chalky cliffs continue as far as Sangatte, 2 miles NE of Cap Blanc-Nez. A prominent square belfry standing in this village can be seen over the dunes.

Between Sangatte and Calais, 4 miles ENE, the coast is low and sandy.

Tides—Currents.—The tidal currents are very strong off the coast between Boulogne and Calais. At about 2.5 miles NW of Cap Gris-Nez, the flood and ebb tidal currents attain velocities of about 3.5 knots at springs.

At 1 mile NW of Cap Gris-Nez, the NE tidal current begins about 2 hours before HW at Dover, and the SW tidal current begins about 3 hours 45 minutes after HW at Dover; the velocity in both directions is about 4 knots at springs.

For additional information concerning currents in Dover Strait, see paragraph 6.2.

Caution.—An explosives dumping area, which may best be seen on the chart, lies about 1.5 miles N of the entrance to Boulogne.

Large concentrations of drift-net fishing vessels may be encountered in the vicinity of Cap Gris-Nez during December and January.

A submarine power cable area, within which anchoring by vessels over 50m in length is prohibited, lies between Cap Blanc-Nez and Calais, and may best be seen on the chart.

Calais (50˚58'N., 1˚51'E.)

World Port Index No. 35750

6.21 Calais is the most important port for cross-channel ferry traffic from England. It also provides extensive facilities for commercial shipping and is connected to the network of canals in the N part of France.

Calais

Winds—Weather

During strong winds from WSW, through N, to ENE, a very heavy sea may be created in the harbor entrance and entry is sometimes impossible. A strong swell may be experienced within the harbor in such conditions.

Tides—Currents

The tides rise about 7.2m at springs and 5.9m at neaps.

At a position 0.5 mile NW of the jetty heads, the flood current runs ENE and begins 2 hours 45 minutes before HW at the port. The ebb current runs WSW and begins 3 hours 30 minutes after HW. The flood current attains a maximum rate of 3 knots at springs and the ebb current a rate of 2 knots.

Close to the jetty heads the slack water periods, which last 15 minutes in good weather, occur 2 hours 30 minutes after HW at the port and 3 hours 30 minutes before HW (LW slack). These times may be advanced by 30 minutes during strong W winds and retarded by 30 minutes during strong E winds.

The current is rectilinear. There is probably little or no current between the jetties or within the harbor.

Depths—Limitations

The Approach Channel, which has been swept for obstructions, has depths over 10m. The entrance channel, which is 230m wide between the jetties, has a dredged depth of 9m.

The entrance channel leads into Avant-port. Bassin Henri Ravisse (Bassin des Guerlettes-Bassin Est), a large tidal basin, is entered at the E side.

Bassin Henri Ravisse, which is dredged to a depth of 9m, is 1,200m long and 200m wide. The N side provides 820m of berthage with a depth of 12.5m alongside. A berth, with a depth of 9m alongside, is situated at the E side and is used by cross-channel catamaran ferries. A service berth, 200m long, is situated at the S side of the basin.

Arriere-port is entered from the SW side of Avant-port. Quai Paul-Devot, located in the SE part, is 240m long and has a depth of 9m alongside.

Gare Maritime, situated between the SE end of Avant-port and the N side of Arriere-port, has four berths, with depths of 5 to 7m, for cross-channel ro-ro ferries located at each side.

Basin West is entered from the SW side of Arriere-port through a dock gate, 17m wide, which is spanned by a road bridge. The gate has a depth of 2m over the sill and the basin is maintained at a depth of 7.6m. Vessels up to 110m in length, 16m beam, and 6m draft can enter the basin but it is mainly used by small craft and pleasure boats.

Bassin Carnot is entered from the E end of Arriere-port through a lock, 133m long and 21m wide, with a depth of 1.8m over the sill. The basin is maintained at a depth of 7.6m and provides 1,700m of berthage. Vessels up to 150m in length and 16m beam can enter with drafts up to 6.6m. Vessels with beams between 16m and 19.5m can enter with drafts up to 5.9m. Vessels over 115m in length have to canal through the lock at near HW.

The port has facilities for ro-ro ferries, container, general cargo, bulk, and passenger vessels. Vessels up to 245m in length and 11.5m draft can be accommodated.

The port also provides repair facilities. A drydock, situated at the S end of Bassin Carnot, can handle vessels up to 150m in length, 19m beam, and 6m draft..

It is reported (2003) that high-speed vessels are operating from the former hovercraft terminal which is situated 1.5 miles E of the main port entrance.

Aspect

Ridens de la Rade, a bank of sand and shells, fronts the port and extends up to about 1.5 miles offshore. This bank lies almost parallel to the coast and is an extension of the coastal bank bordering the shore to the E of the port. It has depths of 3 to 8m in the W part and almost dries in the E part. The sea breaks heavily on this bank with N to E winds.

Ridens de Calais, a bank with depths of 8 to 16m, extends about 5.3 miles NE from the NW end of Ridens de la Rade.

The Approach Channel leading SE and E along the S side of Ridens de la Rade to the port entrance is marked by lighted buoys, which may best be seen on the chart.

A directional sector light is shown from a pylon, 8m high, standing in the E part of Sangatte. A radar scanner is also mounted on this pylon. A light is shown from a prominent structure, 10m high, standing on the W jetty head.

A main light is shown from a conspicuous white tower, 51m high, standing 0.8 mile SSE of the head of the W jetty.

Two conspicuous silos, 56m and 42m high, stand on the N side of Henri Ravisse Basin (Bassin Est), about 0.2 mile E of the root of the E jetty.

A prominent water tower is situated at Bleriot-Plage, about 1.5 miles W of the main light. A pyramid-shaped building stands on Quai de la Maree and houses the pilot station.

A lighted range indicating the approach to the former hovercraft terminal is situated 1.2 mile ENE of the main port light and may best be seen on the chart. A prominent chimney is situated close S of the terminal.

A prominent signal tower, 30m high, stands on the E jetty, about 250m from the light at the head. A conspicuous radar tower is situated on the E jetty, between the head and this signal tower.

Pilotage

Pilotage is compulsory for vessels 50m or more in length, inbound or outbound, within 3.5 miles of the port entrance.

All vessels should send a message to the pilot station 12 hours in advance stating their ETA at CA4 Lighted Buoy, length, beam, draft, and last port of call.

Vessels should then contact the pilot station by VHF 2 hours prior to arrival in order to confirm their ETA.

Pilots generally board about 0.7 mile N of CA4 Lighted Buoy.

Vessels should not confuse the Dunkerque pilot vessel, stationed about 4.5 miles NE of CA4 Lighted Buoy, with the Calais pilot boat, which only leaves port to meet vessels.

Regulations

Inbound vessels must report to the port traffic control on VHF channel 12, as follows:

1. Vessels approaching from SW should report when passing CA3 Lighted Buoy (50˚57'N., 1˚41'E.).
2. Vessels approaching from NW should report when crossing the E limit line of the Dover Strait TSS.
3. Vessels approaching from N and E should report when crossing a line drawn between RCE Lighted Buoy (51˚02'N., 1˚53'E.) and RCW Lighted Buoy (51˚01'N., 1˚45'E.), and then extended along the parallel of RCW Lighted Buoy to the E limit of the TSS.

Inbound vessels should then also report when passing CA4 Lighted Buoy (50˚59'N., 1˚45'E.). Cross-channel ferries should report when passing CA6 Lighted Buoy (50˚58'N., 1˚46'E.).

Special regulations and reporting procedures apply to vessels over 1,600 grt transporting dangerous cargo in bulk in the approaches to the French coasts of the North Sea, the English Channel, and the Atlantic Ocean between the Belgian border and the Spanish border.

Such vessels should consider the Approach Channel leading SE from the Dover Strait TSS and E toward the port entrance to be a Mandatory Access Channel. The outer N limit of this Approach Channel is marked by CA4 Lighted Buoy. They must also establish contact with the port traffic control on VHF channel 16 before entering the Approach Channel and maintain a listening watch on the same frequency. Such vessels may not proceed E of the meridian of CA4 Lighted Buoy without a pilot on board. While transiting the Approach Channel these vessels are deemed to be restricted in their ability to maneuver and must show the appropriate lights and shapes.

Such vessels must also use the designated Waiting Area (anchorage).

For further details of these special procedures, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

Signals

International port traffic signals are shown from the signal tower standing on the E jetty, at the entrance to Bassin Henri Ravisse, and on the W side of the entrance to Arriere-port. For further information, see paragraph 1.1.

Anchorage

A designated Waiting Area, the limits of which are shown on the chart, lies centered 5 miles NNW of the port entrance. This anchorage area has depths of 17 to 28m and is shared with the port of Dunkerque. Vessels waiting to enter Calais may anchor in the S part of this area.

A recommended anchorage for vessels waiting to enter Calais lies between Ridens de Calais and Ridens de la Rade, and between the meridians of 1˚47'E and 1˚48'E.

During strong N winds, vessels unable to enter the port may seek shelter in The Downs (51˚13'N., 1˚13'E.).

Anchorage in the vicinity of CA4 Lighted Buoy (50˚59'N., 1˚45'E.) is not recommended due to the remains of numerous wrecks and obstructions.

Directions

The Approach Channel, which may best be seen on the chart, leads SE from the Dover Strait TSS toward Sangatte Light and then 5 miles in an E direction along the S side of Ridens de la Rade to the harbor entrance. Sangatte Light bearing between 089˚ and 152˚ leads from seaward. A directional light is shown from a structure standing about 0.3 mile N of the main light. However, the harbor entrance alignment depends on the time of the tide. The best time for entering the harbor is at slack water, about 3 hours before HW.

Caution

According to recent French surveys, depths are generally less than charted on the N side of the port approach channel (on Ridens de la Rade). Vessels are recommended not to sail closely along the N edge of the Approach Channel.

Vessels proceeding in the channel between the jetties at the port entrance must allow for the strong cross tidal current.

An area, within which anchoring and fishing are prohibited, extends up to about 1 mile W of the port entrance and may best be seen on the chart.

An explosives dumping area, which may best be seen on the chart, lies 1.4 miles N of the port entrance, at the N side of Ridens de la Rade.

A spoil ground (dumping area) lies about 1 mile NW of the port entrance, at the N side of Ridens de la Rade.

High speed ferries may be encountered in the approaches to the port.

Off-lying Banks between Calais and the Belgian Frontier

6.22 Bancs de Flandre (Flanders Banks) lie E of the meridian of 1˚48'E and extend up 12 miles offshore. They are long, narrow, and diverge to the E. The inner banks trend ENE and lie parallel to the coast.

The banks are composed of fine grey and black sand. They are generally steep-to on the inshore side and slope gradually seaward. The sea breaks heavily on the shallowest parts of the banks when the wind is against the tidal current. The shape and position of these banks are subject to change.

Except for Sandettie Bank, which lies in the center of Dover Strait, Bancs de Flandre form several lines of banks.

The outer line of banks consists of Out Ruytingen, In Ruytingen, and Bergues Bank. This line extends about 26 miles NE from a position 7 miles N of Calais.

Sandettie (51˚15'N., 2˚00'E.), the outermost of the Bancs de Flandre lying off the French coast, is situated within the Dover Strait TSS and described in paragraph 6.3.

Out Ruytingen (51˚08'N., 2˚04'E.), the outermost bank lying S of the Dover Strait TSS limit, is described in paragraph 6.3.

In Ruytingen (51˚13'N., 2˚16'E.), with depths of 1.9 to 9.7m, extends NE for about 5 miles. Its NE end is marked by Ruytingen Est Lighted Buoy.

Bergues Bank (51˚16'N., 2˚20'E.), with depths of less than 10m, extends NE for about 5 miles and lies adjacent to the SE side of the West Hinder TSS.

The Dyck Banks, lying 2 to 3 miles inside the Ruytingens, extend about 31 miles NE from a position 4.5 miles NNE of Calais. This line consists of Dyck Occidental, Le Dyck (Dyck Central), and Dyck Oriental (Oost Dysk).

The Ratel Banks, lying inside the Dyck Banks, extend about 19 miles NE from a position 4.5 miles NNE of Port Ouest (Dunkerque). This line consists of In Ratel, Binnen Ratel, and Buiten Ratel. Banc Breedt, which dries in its central part, runs almost parallel to In Ratel and Binnen Ratel. This bank lies about 0.5 mile inside In Ratel and connects with Binnen Ratel near its NE extremity.

There are also a number of inner banks which may best be seen on the chart. Most of these banks are extensions of the coastal bank.

Haut-Fond de Gravelines, with a least known depth of 4.3m, lies about 3 miles N of the entrance to Gravelines, and also NW of the crossroads where Passe de Ruytingen and Passe de l'Ouest meet.

Bancs du Snouw, Break, Hills, Traepegeer, and Smal, with many drying patches, border the N side of Rade de Dunkerque.

Tides—Currents.—In the area of Bancs de Flandre, the flood tidal current in spring tides lasts about 5 hours, and the ebb about 7 hours; in neap tides, the differences are reduced.

The tidal currents are alternating; offshore the currents run in a general NE to SW direction, and nearer shore the currents run parallel to the shore in an E to W direction.

The currents turn slowly counterclockwise, except near the change where the rotation is rapid.

The maximum velocities of the NE and E tidal currents, about 1.7 to 3 knots in spring tides, occur offshore between 1 and 2 hours after HW at Calais, and nearer shore at the time of HW at Dunkerque; the SW and W tidal currents, attaining

about the same velocities, occur offshore 4 hours after HW at Calais, and nearer shore between 4 and 5 hours before HW at Dunkerque.

Calais to the Belgian Frontier

6.23 The coast from Calais to Gravelines, about 10 miles ENE, is very low, sandy, and backed by a flat countryside. The coastal bank along this stretch dries in places and extends up to about 1 mile offshore.

Pointe de Walde Light (51˚00'N., 1˚55'E.) is shown from a hut on a framework tower, 18m high, standing on the drying coastal bank, about 0.6 mile offshore.

Pointe de Walde Light

The pointed belfry of the church situated at Oyle-Plage, 5 miles ESE of Pointe de Walde Light, is prominent from seaward.

Dyck Lighted Buoy (51˚03'N., 1˚52'E.), equipped with a racon, is moored at the W end of Dyck Occidental, about 4.7 miles NNE of the entrance to Calais.

RCE Lighted Buoy (51˚02'N., 1˚53'E.) is moored at the NE end of Ridens de Calais, about 1 mile SE of Dyck Lighted Buoy. Buoys (special) are moored close SE and SW of this lighted buoy.

DKA Lighted Buoy (51˚02'N., 1˚57'E.), marking the W approach to Passe de l'Ouest, is moored about 3.3 miles E of Dyck Lighted Buoy.

A conspicuous nuclear power station, with six chimneys 60m high, is situated about 8 miles E of Pointe de Walde Light, between the entrance to Gravelines and Dunkerque (Port Ouest). Four lighted buoys (special thermograph), which may best be seen on the chart, are moored up to 0.7 mile offshore in the vicinity of the power station.

The coast between Dunkerque (Port Est) and the border with Belgium is backed by dunes and fronted by a drying bank.

A prominent water tower and a chimney stand at Zuydcoote, 5.2 miles E of Dunkerque (Port Est). A factory plant, with two conspicuous water towers and several chimneys, is situated about 1.2 miles SW of Zuydcoote.

A church, with a conspicuous belfry, and a prominent casino are situated at Bray Dunes (51˚05'N., 2˚31'E.), about 6.5 miles E of Dunkerque (Port Est).

The border between France and Belgium lies about 1.2 miles E of Bray Dunes.

For a description of the waters lying E of the France-Belgium border, see Pub. 192, Sailing Directions (Enroute) North Sea.

Caution.—Numerous wrecks lie off this section of the coast and may best be seen on the chart.

Submarine cables, which may best be seen on the chart, extend seaward from points on the shore located about 1.2 miles SW and 4.7 miles E of Pointe de Walde Light.

Three detached breakwaters, used for sand stabilization, lie about 0.3 mile offshore, 1.8 miles E of Dunkerque (Port Est).

An area, within which fishing is prohibited, lies centered 0.6 mile SE of Dyck Lighted Buoy (51˚03'N., 1˚52'E.) and may best be seen on the chart.

An extensive area, within which anchoring and mooring are prohibited, lies centered 1 mile SE of Dyck Lighted Buoy (51˚03'N., 1˚52'E.) and may best be seen on the chart.

6.24 **Gravelines** (51˚00'N., 2˚07'E.) (World Port Index No. 35740), a small port, lies 1 mile SE of the coast. It is used by fishing vessels, coasters, and pleasure craft. The harbor consists of an Avant-port and Bassin Vauban, a wet basin. The entrance to Avant-port lies at the mouth of the Riviere Aa.

Tides—Currents.—The tides rise about 6.3m at springs and 5.1m at neaps.

Winds from the N through W raise the water level up to 0.5m, while winds from the opposite direction decrease the level of water by as much as 0.7m.

At a position about 0.5 mile off the jetties, the flood current runs ENE and starts about 2 hours 30 minutes before HW at Dunkerque. It attains a normal maximum rate of 2 knots about 10 minutes before HW at Dunkerque, although rates up to 3.5 knots have been observed. Slack water occurs for 15 minutes about 3 hours after HW at Dunkerque. The ebb current runs WSW and starts after the slack water period. It attains a maximum rate of 1.7 knots between 4 hours 50 minutes and 5 hours 50 minutes after HW at Dunkerque.

Close off the jetty heads, the currents begin about 30 minutes earlier. Within the jetties the currents do not exceed a rate of 1.5 knots.

Depths—Limitations.—The port is approached from Passe de l'Ouest. The entrance to the river is protected by two jetties, which extend about 0.8 mile seaward. A bar, consisting of sand banks, fronts the entrance and dries 1m.

The Avant-port extends along the river to the wet basin. A wharf, 170m long, is situated on the W bank. It dries 1.5m and is used by fishing vessels. The fairway is 15m wide and marked by beacons.

Bassin Vauban, the wet dock, is entered through a lock, which is 28m long and 10m wide, with a depth of 0.6m on the sill. The lock is spanned by a revolving bridge. The dock has 390m of berthage and provides facilities for pleasure craft. Coasters up to 70m in length and 9.8 beam can be accommodated with drafts up to 3.4m at springs and 2.1m at neaps.

Small craft can gain access to the river and the canal system from the SW end of the wet dock through three lock gates, each 6m wide.

Aspect.—The small towns of Petit-Fort-Philippe and Grand-Fort-Philippe stand, respectively, on the E and W banks of the river at the entrance.

The prominent structure of a former lighthouse, 27m high, stands close to the root of the E jetty. The spire, 46m high, of a church standing in Petit-Fort-Philippe is prominent. The belfry, 38m high, of a church standing in Grand-Fort-Philippe is prominent. A conspicuous square church tower is situated about 0.4 mile E of the wet dock, among the factory chimneys.

Pilotage.—Pilots are provided by the station at Dunkerque (see paragraph 6.26). Vessels requiring pilotage should proceed to the boarding ground off Rade de Dunkerque Est.

Anchorage.—Anchorage can be taken off the entrance, in depths of 6 to 10m, sand and shells, with good holding ground. This anchorage is untenable with strong onshore winds and should only be used by vessels waiting to enter the harbor.

Caution.—Local knowledge is advised. Entry to the harbor is especially difficult with onshore winds. Larger vessels usually enter the port 30 minutes before HW and must make allowance for the flood current running ENE across the entrance.

An explosives dumping area, which may best be seen on the chart, lies 1.7 miles NW of the jetty heads.

Approaches to Dunkerque

6.25 There are three main approaches to Dunkerque (Port Ouest) or Dunkerque (Port Est).

Passe de l'Ouest (51˚03'N., 2˚09'E.) is the principal route for vessels approaching from the W. It leads to Port Ouest. The channel is dredged to a depth of 22m as far as the entrance to Port Ouest. Chenal Intermediaire, a continuation of Passe de l'Ouest, leads to Port Est and has a least depth of 12.5m.

The approach to Passe de l'Ouest lies between Dyck Lighted Buoy (51˚03'N., 1˚52'E.) the RCE Lighted Buoy (51˚02'N., 1˚53'E.), moored about 1 mile SE. The entrance is marked by DKA Lighted Buoy (51˚02'N., 1˚57'E.), which is moored about 3.3 miles E of Dyck Lighted Buoy.

From a position about 2.5 miles E of DKA Lighted Buoy, the channel leads in an ENE direction for 4 miles to the harbor entrance. This section of the channel passes S of Haut-Fond de Gravelines and N of the coastal bank. It is marked on each side by lighted buoys, which may best be seen on the chart.

Chenal Intermediaire, marked by lighted buoys, leads 8.5 miles E from the E end of Passe de l'Ouest to the entrance to Port Est. The channel passes N of Banc de Mardyck and Banc de Saint-Pol, and S of Banc de Snouw and Banc Braek. A recommended track, which may best be seen on the chart, leads through this channel.

Bancs de Flandre (51˚15'N., 2˚26'E.) is a route leading from NE. It should only be used by vessels with local knowledge or under pilotage.

From a position about 3 miles S of the West Hinder Light Platform (51˚23'N., 2˚26'E.) and S of the West Hinder TSS limit, the route leads 26 miles in a general SW direction. The route passes between Dyck Oriental (Oost Dyck) (51˚15'N., 2˚26'E.) and Bergues Bank (51˚17'N., 2˚22'E.), and then N and W of the N part of In Ruytingen (51˚13'N., 2˚16'E.). It then passes though Passe de Ruytingen (51˚10'N., 2˚10'E.), which lies between In Ruytingen and Out Ruytingen (51˚08'N., 2˚04'E.). The route then passes through Passe du Dyck (51˚06'N., 2˚06'E.), which lies between the E end of Dyck Occidental and the W end of Le Dyck (Dyck Central). It then passes through Passe du Haut-Fond de Gravelines, lying W of the W end of Haut-Fond de Gravelines, and connects with Passe de l'Ouest, about 3.5 miles W of the harbor entrance (Port Ouest).

Generally, depths over 11m can be maintained on this route from NE, except within Passe du Dyck and Passe du Haut-Fond de Gravelines, where depths less than 9m are found. After passing through Passe de Ruytingen (51˚10'N., 2˚10'E.), vessels with deeper drafts may continue WSW and stay N of Dyck Occidental. Such vessels may then round Dyck Lighted Buoy (51˚03'N., 1˚52'E.) and enter Passe de l'Ouest.

Passe de Zuydcoote (51˚08'N., 2˚31'E.), a coastal route, leads from the E. From a position at the SW end of Westdiep close E of E12 Lighted Buoy (51˚08'N., 2˚31'E.), the route, which is marked by buoys, leads 3.5 miles SSW through Passe de Zuydcoote. It then leads 4.5 miles WSW through Passe de l'Est into Rade de Dunkerque, which fronts the harbor entrance (Port Est). A recommended track, which may best be seen on the chart, indicates the route. The depths along this route are subject to frequent changes. The route through Passe de Zuydcoote crosses depths of less than 5m.

Passe de Zuydcoote connects Dunkerque with Nieuwpoort (51˚09'N., 2˚43'E.) and Oostende (51˚14'N., 2˚55'E.). From the position close E of E12 Lighted Buoy (51˚08'N., 2˚31'E.), a route leads 16.5 miles ENE through Westdiep (Belgian waters) and Kleine Rede (51˚10'N., 2˚13'E.) to the vicinity of Oostende.

Caution.—Depths in the approach channels are subject to change and the port authorities should be consulted prior to using them.

A former mined area lies in the vicinity of the approaches to Dunkerque. The area is considered safe for surface navigation, but remains dangerous for anchoring, trawling, or carrying out any seabed activities. These dangers do not apply to the E and W approach channels. For further details, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

Dunkerque (51˚03'N., 2˚21'E.)

World Port Index No. 35730

6.26 Dunkerque is a large commercial port serving the industrial and mining regions of the N part of France. The port complex extends from Gravelines to the old town of Dunkerque, about 10 miles E.

The port of Dunkerque has two harbors, Port Ouest and Port Est, with their entrances 6 miles apart. These harbors are linked internally by a canal and to seaward by Chenal Intermediaire.

Dunkerque is connected to the French and Belgian canal networks.

Tides—Currents

The tides rise about 6m at MHWS and 5m at MHWN.

In the area of the off-lying banks, the tidal currents are more or less reciprocal in direction and follow the line of the main channels. In the vicinity of the harbor entrances the current turns away from the land at the end of the flood and turns toward the land at the end of the ebb.

The tidal currents off Dunkerque attain their maximum rate of about 2.5 knots where the banks are close together. They are weaker to the E, attaining rates of 1.5 to 2 knots off Bray-Dunes, and to the W, attaining rates of 1.7 to 2.2 knots off Gravelines.

Off Gravelines and Port Est, the E flood current attains its maximum rate about the time of local HW and the W ebb current attains its maximum rate about 5 hours before local HW.

The duration of slack water off Dunkerque is about 15 minutes. It may be reduced to 10 minutes during W winds and increased to 20 minutes during E winds. Slack water occurs 2 hours before and 4 hours after local HW.

Generally, the duration of the flood current is appreciably less than the duration of the ebb current and it is probably stronger.

The times and strengths of the tidal currents may differ significantly due to meteorological conditions. At springs, the predicted strength of the tidal currents may be exceeded by 25 per cent. At neaps, the predicted strength of the tidal currents may be exceeded by as much as 40 per cent. The timing of slack water may also vary by as much as 2 hours.

Winds from NE may reduce the predicted tidal height by up to 0.3m while winds from other directions may increase the height by up to 0.5m.

Two buoys, which indicate the direction of the tidal current, are moored 0.9 mile WNW of the head of Port Ouest W jetty and 0.4 mile WNW of the head of Port Est W jetty. Viewed from N these buoys show a black side by day and a white light over an orange light at night when the E flood current is running. They show a white side by day and two white lights at night when the W ebb current is running.

Depths—Limitations

Port Ouest.—Port Ouest is protected by two angled jetties which form an entrance, 450m wide. It consists of an Avant-port, 1 mile long, and Bassin de l'Atlantique, a large tidal basin.

The entrance channel, leading SE into Avant-port from Passe de l'Ouest, is dredged to a depth of 20m. The dredged depth reduces to 19m within Avant-port and to 17m within Bassin de l'Atlantique.

Flandres Fuel Terminal is situated at the W side of Avant-port. It consists of a finger pier extending from the W jetty and has a depth of 23m alongside. Tankers up to 300,000 dwt, 360m in length, 60m beam, and 20.5m draft have been accommodated.

Quai de Flandre, situated at the SE side of Bassin de l'Atlantique, is used by container and ro-ro vessels. It is 600m long and has a depth of 13.3m alongside. Vessels up to 12.5m draft can be accommodated alongside.

Darse de la Manche is connected to the NE side of Bassin de l'Atlantique. Quai de Lorainne, situated on the S side, provides 490m of berthage at the W end, with a depth of 13.3m alongside, and 260m of berthage at the E end, with a depth of 7m alongside. It is used by container, ro-ro, and passenger vessels.

Both Quai de Flandre and Quai de Lorraine are collectively known as Port Rapide. Movements in Port Rapide are unrestricted day or night.

Quai d'Alsace and Quai de Ramsgate, situated at the E side of Darse de la Manche, have depths of 7 to 8m alongside. They provide passenger, rail, and freight facilities for the cross-channel ferries. Vessels up to 7m draft can be handled.

Western Bulk Terminal, with 870m of total quayage, is situated on the SW side of Bassin de l'Antique. Berth No. 1 (Quai a Pondereux Ouest), at the N end, is 350m long and has a depth of 23m alongside. Berth No. 2 is 295m long and has a depth of 15m alongside. Berth No. 3, at the S end, is 225m long and has a depth of 13m alongside. Bulk vessels up to 180,000 dwt and 18m draft can be accommodated alongside at this terminal.

Canal des Dunes, with a depth of 3.5m, connects Bassin de Mardyck in Port Este to Darse de la Manche in Port Ouest. It is mostly used by small craft and barges.

Port Est.—Port Est, protected by two jetties, is entered directly from Rade de Dunkerque. It consists of an Avant-port and a number of enclosed wet basins.

Avant-port and the approach to Ecluse Charles de Gaulle, the main lock, are dredged to a depth of 13.5m.

Port d'Echouage, a tidal basin, is connected directly to the E side of Avant-port by a channel dredged to a depth of 5m. It is used by fishing vessels and pleasure craft.

Ecluse Trystam, a lock, is situated on the W side of Port d'Echouage and leads into the E part of Bassins de Freycinet. It has a usable length of 150m, a usable width of 22m, and a depth of 4.5m over the sill. This lock is used when the Ecluse Watier lock is occupied or for pleasure craft during weekends.

Ecluse Watier, a lock, is situated at the S side of Avant-port and approached through a channel dredged to a depth of 8m. It leads into the W part of Bassins de Freycinet. This lock has a usable length of 230m, a usable width of 32m, and a depth of 8m over the sill.

Bassin de Freycinet consists of six smaller basins, which are separated by piers. A passage, 26m wide and spanned by a swing bridge, divides the two southeasternmost basins from the remaining four. These basins provide a total of 50 berths, with depths of 6.7 to 12.8m alongside. The piers are fronted by quays, 114 to 406m long. Vessels up to 250m in length and 12m draft can be accommodated.

Three small inner basins, which are used by fishing vessels and small craft, are connected to the SE side of Bassin de Freycinet by a narrow passage.

Ecluse Charles de Gaulle, the main lock, is entered at the W side of Avant-port. It is 364m long and 47.5m wide, with a depth of 13.5m over the sill. This lock is operational at all times. Vessels up to 289m in length, 45m beam, and 14.2m draft can be accepted by day, in favorable conditions.

This lock leads into Bassin d'Evitage, a turning area dredged to a depth of 13.2m. Bassin d'Evolution is entered at the SE side of the turning area and leads into the W end of Bassin de Freycinet. Bassin Maritime is entered at the W side of the turning area and leads to Bassin de Mardyck, 2.8 miles WSW.

An oil terminal, fronting a refinery, is situated on the S side of Bassin d'Evolution. It can handle tankers up to 245m in length and 12.5m draft.

Bassin Maritime, with a swinging area at its W end, has a general dredged depth of 12m.

A grain terminal berth, 195m long, is situated at the E end Bassin Maritime and has a depth of 14.5m alongside. It is capable of accepting vessels up to 250m in length and 14.2m draft.

Quai Usinor, situated close W of the grain terminal, provides six bulk berths, with alongside depths of 8 to 17m. A T-shaped quay, 720m long, is situated close W of Quai Usinor and handles heavy bulk commodities.

Quai de Grand Synthe, 590m long, is situated at the W end of the Bassin Maritime. It is capable of accepting vessels up to 80000 dwt and 14.2m draft.

A tanker terminal, situated on the SW side of Bassin de Mardyck, has depths up to 16.2m alongside. It is capable of accepting vessels up to 275m in length and 14.2m draft.

Stoknord Petro-chemical wharf, situated W of the tanker terminal, handles chemical tankers and gas carriers. It is capable of accepting vessels up to 100,000 dwt, 280m in length, and 14.2m draft.

An ore terminal berth, 642m long, is situated at the E side of Bassin de Mardyck and has a depth of 12m alongside. It is capable of accepting vessels up to 11.3m draft.

Dunkerque (Port Ouest and Port Est) provides extensive facilities for bulk, container, oil, ro-ro, rail, LPG, passenger, chemical, general cargo, fishing, and ferry vessels. The port also has repair facilities. A drydock, situated at the N side of Bassin de Freycinet, is 310m long and 50m wide. It can accommodate vessels up to 289m long, 45m beam, and 6.5m draft.

Vessels up to 300,000 dwt, 360m in length, 60m beam, and 20.5m draft have been accommodated in Port Ouest. Generally, vessels over 300m in length can enter only by day.

Vessels up to 120,000 dwt, 289m in length, 45m beam, and 14.2m draft have been accommodated in Port Est. Generally, vessels over 250m in length and 40m beam can enter only by day. The preferred time for vessels over 180m in length and 10m draft to enter is at slack water at the jetty heads, which is either about 3 hours before HW or 2 hours after, depending on the weather conditions and the tidal predictions. Such vessels have priority over other commercial vessels, which may enter and leave at any time.

Aspect

Port Ouest.—Lighted ranges, which may best be seen on the chart, indicate the entrance channel leading into Port Ouest. They consist of high intensity sector lights. A directional sector light, situated at the S end of the basin, indicates the fairway within Bassin de l'Atlantique.

Conspicuous landmarks in the vicinity of Port Ouest include the nuclear power station, previously described in paragraph 6.23; the light structure, 23m high, standing at the head of the E jetty; a group of silos standing at the W side of Bassin de l'Atlantique; and the container gantry cranes situated in the vicinity of Quai de Lorraine. It is reported (1999) that numerous prominent wind generators stand close E of the root of the E breakwater, along the N side of Canal des Dunes.

Port Est.—Lighted ranges, with a common rear light, indicate the limits of the entrance channel leading into Port Est and may best be seen on the chart.

The head of the W jetty is faced with two white-painted panels, which are illuminated at night. The E jetty, which is partly submerged at HW, is marked by reflectors. A prominent light structure, 36m high, stands on the head of the W jetty.

A main light is shown from a conspicuous tower, 56m high, standing 0.8 mile SE of the head of the E jetty, close NW of Ecluse Trystam Lock.

Conspicuous landmarks in the vicinity of Port Est include a casino situated on the foreshore at Malo-les-Bains, about 1 mile E of the main light; a building, 85m high, standing 0.8 mile SE of the main light, at the S end of Port d'Echouage; and a prominent chimney, 110m high, standing near the power station, about 0.9 mile SW of the head of the W jetty.

Pilotage

The Dunkerque pilotage area is divided into two zones. The Outer Zone is limited, as follows:

1. To the W—by the meridian of Calais Light (1˚51.2'E).
2. To the N—by a line extending 3 miles seaward from the low-water mark.
3. To the E—by the meridian of 2˚27'E.
4. To the S—by the coast, the Calais pilotage limit, and the Inner Zone limit.

The Inner Zone is limited, as follows:

1. To the W—by a line joining position 51˚00.0'N, 2˚02.8'E and position 51˚03.0'N, 2˚08.0'E.
2. To the N—by a line consisting of the parallel of 50˚03.0'N, the coast, the meridian of 2˚20.0'E, and the parallel of 51˚04.5'N.
3. To the E—by the meridian of Dunkerque Light (2˚21.9'E.).

Pilotage is compulsory for the following vessels:

1. All vessels of 100m or more in length in the Outer Zone.
2. All vessels of 70m or more in length in the Inner Zone bound for Port Ouest (West Port).
3. All vessels of 50m or more in length in the Inner Zone bound for Port Est (East Port).
4. All vessels carrying dangerous cargoes or without VHF within both zones, regardless of length.

All vessels should send a request for pilotage at least 12 hours in advance (or on departure from a previous port if less than 12 hours). The message must include vessel's name, length, beam, draft fore and aft, last port of call, and ETA at the appropriate pilot boarding position (Dyck Lighted Buoy, E12 Lighted Buoy, or Rade Dunkerque Est).

Vessels should send amendments to their ETA of more than 2 hours at least 6 hours before arrival. Vessels should then confirm their ETA by VHF, telex, or telephone 2 hours prior to arrival at the pilot boarding position.

Pilots board vessels in the following positions:

1. Near Dyck Lighted Buoy (51˚ 03.0'N., 1˚ 51.8'E.)
2. Near E12 Lighted Buoy (51˚ 07.9'N., 2˚ 30.7'E.).
3. In Rade de Dunkerque Est (51˚ 04.0'N., 2˚ 21.4'E.).

When embarking the pilot, care should be taken not to drift down onto the Dyck Lighted Buoy as the tidal currents are very strong in this location.

All vessels crossing or anchoring in the Dunkerque waiting area should maintain a continuous watch on VHF channel 72.

The local pilot station may be contacted by e-mail at the following web address:

tov.piloduk@wanadoo.fr

The ETA message sent to the pilot station 12 hours prior to arrival must also be addressed (sent) to the port harbormaster.

The port of Dunkerque may be contacted by e-mail at the following web address:

info@portdedunkerque.fr.

All vessels in the regulated shipping zone, access channel, and dumping spoil ground areas must maintain a continuous watch on VHF channel 73.

Vessels subject to SURNAV while on route between the Dover Strait TSS and the Dunkerque regulated zone or waiting area must maintain a continuous watch on VHF channel 13 with Gris-Nez Traffic and on VHF channel 73 with Dunkerque Port.

SURNAV is a system designed to monitor the movements of vessels carrying dangerous cargo navigating in the approaches to the French coast. For more information, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

Boarding by helicopter depends on the weather conditions and is at the discretion of the pilot. Vessels will receive instructions from Pilotes Dunkerque on VHF channel 72 or by telephone 2 hours prior to arrival at Dyck Lighted Buoy (51˚03'N., 1˚52'E.). Pilots may, at the request of the vessels's Master:

1. Board on passing Cape Gris-Nez passage.
2. Board or disembark on passing the following:
   a. MPC Lighted Buoy (51˚06.1'N., 1˚38.2'E.).
   b. Ruytingen Lighted Buoy (51˚13.2'N., 2˚10.3'E.).
   c. Oost Dyck Lighted Buoy (51˚01.5'N., 2˚01.1'E.).

Deep sea pilots are available and should be requested from Pilotage Hauturier Dunkerque at least 48 hours in advance through Brest Le Conquet (FFU) or Boulogne (FFB). The message must include destination, length, draft, and contact details of the agent or vessel owner. Vessels should also send their ETA 48 hours and 24 hours in advance of arriving at the pilot borading position. The deep sea pilot station may be contacted by e-mail at the following web address:

pilotage-hauturier@wanadoo.fr

Regulations

Vessels are prohibited from stopping, fishing, or anchoring, except in emergency, within the approach channels (Passe de l'Ouest, Passe Est, Westdiep, Passe de Zuydcoote, and Chenal Intermediaire) and roadsteads of Dunkerque. This regulation also applies to the four dumping ground areas lying N of the approach channels.

Restricted Areas (Release Zones), the limits of which may be best seen on the chart, lie about 2 miles NW and 7 miles W of the entrance to Port Ouest. Vessels waiting to enter the port can stop or anchor in these areas only with permission of the Harbor Master.

Vessels with drafts over 10m or lengths over 230m are considered to be constrained. Such vessels must display the appropriate shapes and lights when transiting the approach channels.

Special regulations and reporting procedures apply to vessels over 1,600 grt transporting dangerous cargo in bulk in the approaches to the French coasts of the North Sea, the English Channel, and the Atlantic Ocean between the Belgian border and the Spanish border.

Such vessels should contact Gris-Nez Traffic on VHF channel 13 or Dunkerque Port Control on VHF channel 73 when arriving within VHF range, and, in any case, before leaving the Dover Strait TSS. Vessels should then maintain a continuous listening watch on these frequencies.

Such vessels must report any significant defects to propulsion, steering, anchoring, or radar equipment prior to entering French territorial waters. Vessels must send an ETA 12 hours before arrival to the pilot station and to Dunkerque Port Control.

Such vessels are authorized to proceed without a pilot to the Waiting Area anchorage lying to the W of Dyck Lighted Buoy. They are not permitted to proceed E of Dyck Lighted Buoy unless a Dunkerque pilot is on board. However, vessels less than 100m in length unable to embark a pilot because of weather may, with permission from the authorities, proceed through the approach channel.

For further details of these special procedures, see Pub. 140, Sailing Directions (Planning Guide) North Atlantic Ocean, Baltic Sea, North Sea, and the Mediterranean Sea.

Signals.

Dredges operating on the S side of the approach channel display a black cone by day and a green light at night. When operating on the N side of the approach channel, they display a red cylinder by day and a red light at night.

Movement signals controlling entry are shown from the ends of the three locks at Port Est. A green fixed light and a green flashing light indicate that vessels should enter the lock and secure to the side with the flashing light. Two red lights indicate that entry is prohibited. When permission to enter the lock is about to be given, the red light situated on the side of the lock to which the vessel should secure starts flashing.

Anchorage

A designated Waiting Area (anchorage), which may best be seen on the chart, extends SW from the vicinity of Dyck Lighted Buoy (51˚03'N., 1˚52'E.). Care should be taken to avoid the wrecks and obstructions lying within this area. The recommended anchorage berth within the area for vessels with drafts over 15m lies about 5 mile WSW of Dyck Lighted Buoy. Vessels with drafts of 10 to 15m should anchor about 2 to 3 miles WNW of Dyck Lighted Buoy.

Vessels should anchor at slack water (2 hours 30 minutes before and 3 hours after HW at Calais) and not at HW, when the tidal currents may attain rates of 3 knots. The Waiting Area

has depths of 17 to 28m and is shared with vessels bound for Calais, which anchor in the S part.

Caution

Numerous wrecks lie in the approaches to the port and may best be seen on the chart.

Buoyage marking the approach channels may be missing or changed without notice. Vessels are recommended to contact the local authorities for the latest information concerning the routes.

Dumping ground areas (spoil areas), which may best be seen on the chart, lie centered about 1.5 miles N and 3.4 miles NNE of the entrance to Port Ouest, and 1.2 miles N and 2.5 miles NW of the entrance to Port Est.

An explosives dumping ground area, which may best be seen on the chart, lies centered about 2 miles NNW of the entrance to Port Est.

It is reported that frequent accidents have occurred at Port Est due to vessels disregarding the effect of the wind on the tidal currents.

High speed ferries may be encountered in the approach channels.

It is reported (1999) that submerged masonry extends up to about 50m seaward from the head of the W jetty at Port Est.